DOCUMENT RESUME

ED 404 838 EC 305 438

TITLE	First Steps: A Handbook for Teaching Young Children Who Are Visually Impaired.
INSTITUTION	Blind Childrens Center, Los Angeles, CA.
PUB DATE	93
NOTE	220p.
AVAILABLE FROM	Blind Children's Center, 4120 Marathon Street, Los Angeles, CA 90029; telephone: 800-222-3566; fax: 213-665-3828 ($28).
PUB TYPE	Books (010) -- Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC09 Plus Postage.
DESCRIPTORS	Assistive Devices (for Disabled); *Behavior Development; Behavior Problems; *Child Development; Child Rearing; Daily Living Skills; Developmental Stages; Early Childhood Education; Early Intervention; Educational Legislation; Etiology; Family Life; Federal Legislation; Individualized Education Programs; Individualized Family Service Plans; *Language Acquisition; Low Vision Aids; Motor Development; *Perceptual Motor Learning; Sensory Integration; Skill Development; Social Behavior; Student Rights; Teaching Methods; *Visual Impairments; Visually Impaired Mobility

ABSTRACT

This handbook provides an overview of the development of young children with visual impairments and their educational needs. The first three chapters outline the developmental path followed by sighted children and contrast this with the lives of children who are visually impaired, introduce the professionals who commonly work with children who are visually impaired, and discuss the medical conditions that cause blindness and visual impairments. Chapter 4 examines the social and interpersonal complexities that arise in a family's life when their child is diagnosed with a visual impairment. Chapter 5 offers suggestions on how problem behavior in the classroom can be addressed and outlines steps to provide norms of social behavior. The next three chapters deal with more technical aspects of childhood development including speech and language acquisition, sensorimotor integration, and motor development. Chapter 9 discusses orientation and mobility skill development, and Chapter 10 focuses on self-help skills with suggestions for enhancing independence. The final chapter defines the educational rights of children with impairments as defined by federal legislation. Examples of an individualized education program and individualized family service plan are included. An appendix includes descriptions of materials and devices for young children with limited vision. Each chapter contains references. (CR)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 404 838

First Steps

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

M. Rogers

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Blind Childrens Center

EC 305438

BEST COPY AVAILABLE

First Steps

A handbook for teaching young
children who are visually impaired

First Steps

A handbook for teaching young
children who are visually impaired

Blind Childrens Center
Los Angeles, California

BEST COPY AVAILABLE

First Steps

A handbook for teaching young children who are visually impaired

All rights reserved. This is copyrighted material and may not be duplicated in whole or in part without the express permission of the Blind Childrens Center. ©1993

Library of Congress Catalog Card Number: 93-71541

Blind Childrens Center
4120 Marathon Street, Los Angeles, California 90029
213/664–2153 • CA 800/222–3567 • USA 800/222–3566 • Fax 213/665–3828

Photography Laurie Headley. Additional photos by Steve Fritz—pages 41 and 67, Juanita Bernabe Galvez—page 149 (and front cover), Rosalinda Mendiola—page 61(and front cover), Pat Nagaishi—pages 89, 92 (and back cover), 95, and 154 (and front cover), Tama Rothchild—pages 72 and 75, Asbel Valencia—pages 4, 12, and 15, and Patti White—page 65.

Design and production Donna Kaptain

First Steps

A handbook for teaching young children who are visually impaired

vii Acknowledgments

ix About the contributors

xiii Introduction

Chapter one
3 Early childhood development

Chapter two
17 Professionals who work with children who are visually impaired

Chapter three
23 The eye

Chapter four
35 The family

Chapter five
57 Behavior management

Chapter six
69 Speech and language development

Chapter seven
83 Sensorimotor integration

Chapter eight
99 Motor development

Chapter nine
115 Orientation and mobility skill development

Chapter ten
139 Self-help skills

Chapter eleven
151 Individualized educational plan and individualized family service plan

Appendix
187 Materials and devices for young children with limited vision

195 Index

BEST COPY AVAILABLE

Acknowledgments

Special thanks go to the friends of the Blind Childrens Center as well as to the dedicated staff members who read chapters and offered their suggestions in order to make the material useful and easy to read: Melinda Adams, Betty Dominguez, Karen Howard, Lorie Lynn LaPrelle, Sharon Maida, Rosalinda Mendiola, Deirdre Millar, Marjorie Nickleberry, Lynne Webber, Chris Winn, and Marion Yoshida.

Credit goes to Susan Simmons for the original concept behind *First Steps*. She collected many of the chapters and contributed to two of them. Her work put into motion the collective effort that has produced this book.

The Margaret Bundy Scott Trust provided the funding which allowed the creation of *First Steps*. Their generous support has made available the many booklets published by the Blind Childrens Center, and now this book. We extend our sincerest thanks to them.

Mardi Robers, L.C.S.W.
Executive Director
Blind Childrens Center

About the contributors

Tanni L. Anthony completed her Ed.S. degree at the University of Northern Colorado in 1983 in the certification areas of orientation and the education of children who are blind or visually impaired, with special emphasis on the early intervention population. She has worked with young children who are blind or visually impaired and their families for the past 14 years in Minnesota, Alaska, and Colorado. She is currently working as program coordinator of the Colorado Services for Children Who Are Deaf And Blind Grant.

Fernanda Armenta, Ph.D., is a clinical psychologist. She received her B.A. in psychology and philosophy, and holds one M.A. in developmental psychology and another in clinical psychology. She completed her doctorate in clinical psychology at the California School of Professional Psychology, Los Angeles. She has conducted research regarding Latino parent participation in structured parent training groups. Fernanda is the Director of Social Services at the Blind Childrens Center and provides individual counseling at a family agency in the city of Diamond Bar. She is a consultant and speaks on issues such as working with culturally diverse populations, the adaptation of the family to a vision diagnosis, the impact of the family on the professional, and other supervisory issues.

BEST COPY AVAILABLE

Deborah Chen, Ph.D., received her B.A. from San Francisco State University, and her doctorate from the joint doctoral program of San Francisco State University and the University of California, Berkeley. She is an assistant professor in the Department of Special Education, at California State University at Northridge. She was the director of the Parents and Visually Impaired (PAVII) Project in San Francisco, and has worked with programs serving families and young children with visual impairments.

Diane L. Fazzi is currently a doctoral candidate in the area of Early Childhood Special Education in the joint doctoral program at California State University at Los Angeles and the University of California, Los Angeles. She received her B.A. in Elementary Education and Education of the Visually Impaired from Kutztown University of Pennsylvania, and holds a M.A. in orientation and mobility from the University of Arkansas in Little Rock. Diane has had experience in many capacities teaching children who are visually impaired of all ages. Currently she is director and assistant professor of the California State University, Los Angeles Orientation and Mobility Training Program.

Margaret A. Hughes is a doctoral candidate in Educational Psychology with an emphasis in Early Childhood Special Education at the University of California, Los Angeles and California State University at Los Angeles. She received her B.A. and M.A. in special education from the New York State University at Buffalo. She has 15 years of special education instruction and diagnostic experience with children who have learning disabilities, mental impairments, and behavioral problems. She is a part-time lecturer at the University of California, Los Angeles, and UCLA Extension, and a private consultant in the areas of assessment and educational programming for children with special needs.

Mary Ellen McCann received her B.A. from the University of Cincinnati and her M.A. from George Washington University. For ten years she was administrator of special classes in Marin County, California, where she supervised one of the first public school birth-to-three early intervention programs. She also served as administrator of special programs for the New York City Schools, and is presently the Director of Education at the Blind Childrens Center.

Patricia Nagaishi, M.A., OTR, is a board-certified pediatric occupational therapist. Pat is currently working toward her Ph.D. in early childhood special education at the University of California, Los Angeles. She received her B.A. in psychology and her M.A. in occupational therapy from the

University of Southern California. She has certifications in sensory integration and neurodevelopmental treatment. She has 15 years of experience working with infants and children who are visually impaired as well as multi-impaired. She is currently an independent consultant in private practice.

Judy Segal, M.A., C.C.C., is a speech and language pathologist who received her M.A. in speech pathology from California State University at Los Angeles. She completed her clinical fellowship year at University Affiliated Program at Childrens Hospital, Los Angeles. Judy has been working with preschool and school-aged children for 12 years, and has been a consultant at the Blind Childrens Center for the past three years. In addition to consulting at the center, she is affiliated with the Neuropsychiatric Institute at UCLA, local regional centers, and teaches at California State University at Los Angeles.

Susan S. Simmons has a Ph.D. from Boston College in Special Education with a specialization in early childhood visual impairment. Her M. A. in Special Education includes credentials as an O&M specialist and as a teacher of the visually impaired. Her 16 years of professional experience include work in public and private schools with children who are visually impaired and those who are multihandicapped. She has also been a faculty member in O&M at Boston College and Director of Education at the Blind Childrens Center. She currently works for Pasadena Unified School District and is an independent consultant in private practice.

Ann Stout, M.D., is a pediatric ophthalmologist at Childrens Hospital, Los Angeles. She has been a member of the Blind Childrens Center's multi-disciplinary assessment team for the past two years.

Introduction

The world of children with visual impairments is a very different one from ours. Sound and touch take on new meaning when sight is severely limited or nonexistent. Although these children are faced with a puzzling array of sensation and information, our love and guidance can create a safe and nurturing path for them to follow. Parents, family members, educators, and health care professionals find themselves drawn together by the formidable challenges of these children's infant and preschool years. In surmounting the difficulties, everyone grows and learns—a never-ending process that tests and enriches all whose lives are touched by children with visual impairments.

Blindness and visual impairment have been on the rise during the past several decades. The medical community possesses a deeper understanding of many causes and today there are effective treatments for a larger number of visual conditions. Unfortunately, along with this progress there has been an increase in the incidence of multi-impairment. This has largely been due to the higher survival rate of newborns as a result of medical advances and, to a lesser extent, due to an over-all decrease in the accessibility of prenatal health care in the nation's urban centers. Now more than ever, a team approach must be employed to address the needs of a growing number of children whose impairments go beyond vision problems.

The members of such a team must build upon their training by staying informed about current research and the availability of innovative treatment, and by adding this knowledge to the growing experience that each of us acquires over the years. There is no substitute for the insight and sensitivity that come with hands-on experience. With this in mind, we feel that all professionals and families have a responsibility to share their knowledge, and *First Steps* represents a collective effort which we hope is useful to all who work with children who are visually impaired.

This book was produced with the largest possible audience in mind, from the mainstream teacher and classroom assistant to family members and babysitters. A straightforward presentation has been chosen that should make the material accessible to teachers, families, and others who may be new to the world of the visually impaired. The Blind Childrens Center believes in a family-oriented approach, and this emphasis will be found throughout *First Steps*. Countless parents and families have discovered that empowerment comes with knowledge, and this book can serve as a starting point in their search for control over their lives. Independence for the child and empowerment of the family should be the goals of every professional caregiver, and each chapter presents information and ideas that can aid a service provider's efforts.

The first three chapters introduce the newcomer to some basic information and concepts. The first, Early Childhood Development, provides an overview of the developmental path followed by sighted children and contrasts this with the lives of children who are visually impaired. Children with impairments may experience delays in reaching certain developmental milestones during their first five years; with insight into these challenges we can reduce the problems that impairments can present. Chapter two, Professionals Who Work With Children Who Are Visually Impaired, presents an introduction to the professionals who commonly work with children who are visually impaired. Chapter three, The Eye, discusses the medical conditions that cause blindness and visual impairment.

Chapter four, The Family, examines the social and interpersonal complexities that arise in a family's life when their child is diagnosed with a visual impairment. A family can find itself at the center of a storm of challenging and sometimes painful situations. This chapter offers several theoretical frameworks that can help service providers and family members make sense of these challenges, and shares the personal experiences of families who have already had to face them.

Chapter five, Behavior Management, offers suggestions on how problem behavior in the classroom can be addressed. The causes of some behaviors are not always obvious; careful observation and evaluation are often necessary before an effective remedial plan can be formulated. The plan presented here outlines three steps that can be employed to help children to absorb the norms of social behavior that will ultimately give them greater autonomy and self-assurance.

The three chapters that follow deal with more technical aspects of childhood development: speech and language acquisition, sensorimotor integration, and motor development. Chapter six, Speech and Language Development, discusses the relationship between vision and the acquisition of speech and language skills. Vision is a key element in language learning, and children with visual impairments rely on us for a great deal of information that might otherwise escape them. The classroom setting can be modified to optimize their language learning. This chapter offers practical suggestions for activities and the arrangement of the physical setting of home and school facilities. Chapter seven, Sensorimotor Integration, considers the complex interaction of the senses and body movement. Our body's relationship to the environment—and the people in it—is mediated by our sensory systems. This relationship encompasses a broad range of tasks, from simple ones such as drinking a glass of water to higher level mental activities such as reading a book. A preschooler with a visual impairment can fall behind in the development of some skills unless special attention is given to adapting the environment to stimulate sensorimotor integration. Chapter eight, Motor Development, builds upon many of the concepts introduced in the previous chapter, as well as discussing gross motor and fine motor development and what these mean to a child with a visual impairment.

Chapter nine, Orientation And Mobility Skill Development, considers the importance of one's awareness of the environment and how one moves through it. At the core of this is the fundamental realm of "knowing oneself as a separate being." Many basic skills develop from this, and, for a child with a visual impairment, these include the ability to move and travel in an unseen world and the desire to explore it. The orientation and mobility specialist works with the family and service providers to refine a child's processing of sensory information and develop meaningful interaction with the environment.

Chapter 10, Self-help Skills, offers practical suggestions for enhancing the independence of a child who has a visual impairment. The most basic activities such as dressing, and matters of personal hygiene must be

introduced to young children to help them develop self-confidence and independence. Attention to these issues must take place not only in the preschool setting, but in the home as well.

The final chapter, Individualized Educational Plan and Individualized Family Service Plan, defines the educational rights of children with impairments as defined by federal legislation. These laws guarantee needed services and programs to young children with visual impairments. The process consists of stipulating the goals and objectives that the family and service providers agree are appropriate and then developing a plan designating the services the child will receive to achieve those goals. Examples of both plans are included at the end of the chapter. These should provide concrete models for service providers and families who are developing their plans for the first time, as well as providing ideas for goals and approaches for service providers who frequently produce these documents.

The Blind Childrens Center has published a number of booklets over the years, however, *First Steps* is the first book to be produced. Its appearance coincides with the Center's fifty-fifth anniversary of offering care and services to children and their families. Service providers from a broad range of specialties have been brought together at the Blind Childrens Center, and their diverse experience forms the foundation of the chapters which follow. The topics covered were selected with this team approach in mind—a reflection of the emphasis of the Center's programs. Because of the family members' importance on the team, this book seeks to address issues of interest to them as well as to specialists. We hope that *First Steps* will be a useful addition to the resources of families and professionals everywhere.

First Steps

A handbook for teaching young children who are visually impaired

Deborah Chen, Ph.D.

Early Childhood Development

Chapter one Early childhood development

Early childhood is an exciting time of discovery and accomplishment. During the first five years, children develop from helpless, dependent babies into walking, talking preschoolers with minds of their own. These remarkable transformations take place as children learn through everyday opportunities to participate in ordinary family activities.

Because vision plays such a primary role in early learning, very young children who are visually impaired are at risk for developmental delays. Depending on type and severity of vision loss, these children will benefit from specific attention to their different learning needs. This chapter discusses: the major developmental accomplishments during the first five years of life; selected theories of child development which guide our practices in early childhood programs; the specific learning needs of infants, toddlers, and preschoolers who are visually impaired; and specific strategies for preschool programs serving children with visual impairments.

Developmental accomplishments (birth through five years)

This section provides an overview of major accomplishments of sighted children during the first five years of life. You will notice the primary role that vision plays in early development and begin to understand the unique learning needs of very young children with visual impairments.

BEST COPY AVAILABLE

Infancy (birth through 18 months)

During the first year, babies develop voluntary control over various behaviors which enables exploration of and interaction with the environment. At first, babies can attend to only one activity at a time: for example, they can listen to sounds, suck on a nipple, or look at a face. At around three months, they coordinate looking, reaching, and grasping offered objects. Babies spend time watching their own hand movements—so called hand regard—which leads to goal-directed reaching and problem solving. They work on head control, on supporting themselves on arms while on their tummies, and on communication through gaze, facial expressions, and body language.

By nine months, babies can sit unsupported and move by rolling, crawling, and scooting. They can reach and grasp objects, push one object aside to get another, and transfer objects from hand to hand. These babies are fascinated by the effects of their actions on things, for example, by dropping objects while sitting in a highchair or banging objects on a surface. They recognize familiar people, protest being separated from a primary caregiver, fear strangers, and anticipate events from environmental cues: for example, by seeing mom getting her bag and getting upset because she will be leaving. During this time, infants begin to imitate what they see and hear. They use simple gestures, such as shaking their heads for "No," waving "Bye-bye," and they understand familiar words such as "Come here," and "Kiss mommy." Babbling leads to "jargon," or meaningless sounds with familiar intonation, and then finally to first words. These infants respond to social interaction, they approximate intonation, and enjoy give-and-take games.

Soon after the first year, infants discover the means to desired ends: for example, pulling a string to get a toy and using objects in appropriate ways. They can pull themselves to a standing position, cruise while holding on to supports, and climb on and off furniture. They spend a lot of time watching others and are mainly interested in exploring, practicing motor skills, and playing with primary caregivers.

Toddlers have a natural desire to touch and master whatever they see.

BEST COPY AVAILABLE

Toddlers (18 through 36 months)

Toddlerhood is a period of increasing autonomy and active physical exploration. Toddlers have a natural desire to touch and master whatever they see. Given their very short memories, they will return to touch forbidden objects even though they understand and respond appropriately to "No." They spend their time throwing, banging, touching, handling, opening and closing, and putting together and taking apart. They turn thick pages of books, activate switches on toys, and put simple puzzles together. They like playground equipment and active play. Toddlers delight in exploring objects and practicing fine and gross motor skills. At this age, children engage in imitation and use objects to represent other objects. They play with problem solving toys such as nesting and sorting pieces. They have a "Me do it" attitude which motivates interest in daily skills such as eating, dressing, grooming, and, in some cases, toileting. While striving for a sense of mastery, toddlers are also learning how to influence others by their actions, particularly through tantrums.

"Me do it" attitudes and tantrum behaviors are all part of developing a self-concept and of growing up. Along with this striving for independence, toddlers realize they are not all-powerful. During this period, some children develop fears, especially of things that are unusual or unfamiliar, such as animals, certain sounds, or specific textures.

Toddlers show increasing use and understanding of words. They know their own and others' names and have the concept of "mine." They engage in parallel play and begin to take turns with other children. Their language development is stimulated by everything in the environment.

Preschoolers (36 through 60 months)

During the preschool years, children become more proficient in using words to communicate feelings and ideas, in cooperative and imaginative play, in daily living skills, and in following classroom rules. Much of this learning is obtained through observation and imitation and interaction with peers. Preschoolers develop friendships and learn how to interact in appropriate ways with children and with adults. Preschoolers are refining social and cognitive concepts which will provide a foundation for later academic and school-related skills.

Preschoolers begin to understand the relationship between feelings, behavior, and consequences. They notice similarities and differences and can plan, anticipate, and think in a somewhat logical way. This logic and inquisitiveness can lead to embarrassing questions about differences in physical appearance: "What's wrong with your eyes?" or, "Do you have a penis?" Preschoolers identify themselves as boys or girls and are very curious about their bodies and gender differences.

Theories of early development

There are several theories about developmental stages that children go through in the first five years of life. Two of these are particularly relevant for understanding the profound impact of visual impairments on early development: Erikson's theory of psychosocial development (1950) and Piaget's theory of cognitive development (1952). Erikson and Piaget have identified a series of interrelated and essential stages in each of their theories. Although age levels are attached to each stage, these should be taken only as approximations of when stages occur. This section also describes a third theory, the transactional model of development as a framework for meeting the unique learning needs of very young children with visual impairments.

Psychosocial development

Erik Erikson emphasizes the role of social factors in emotional development. His theory is composed of several stages, from infancy to old age. The following three stages apply to the first five years of life.

Trust versus mistrust (birth through 1 year)

Babies develop a sense of trust and comfort by receiving consistent and responsive caregiving. In contrast, babies become fearful and insecure if caregiving is inadequate and unpredictable.

Autonomy versus shame and doubt (2 through 3 years)

During this period toddlers strive for independence. Although they need supervision they also need opportunities to do what they can in their own way in order to develop a sense of autonomy. If caregivers are very critical and impatient and controlling, the toddler develops shame and self-doubt.

Initiative versus guilt (4 through 5 years)

Given their skills at this age, preschoolers need opportunities to question, explore, experiment, and to develop concepts of right and wrong. If adults disapprove of this initiative then preschoolers may develop feelings of guilt.

Cognitive development

Jean Piaget emphasizes the active role of children in learning and cognitive development. His theory is composed of five stages from birth to adolescence. Two stages apply to infants, toddlers, and preschoolers.

Sensorimotor period (birth through 2 years)

Infants learn about their environments through active exploration involving looking, mouthing, touching, banging, manipulating, and moving. During this period they discover:

- How to explore and act on objects (schemes);
- Vocal and gestural imitation;
- Means to desired ends;
- Who causes what and how (causality);

- That objects continue to exist even when out of sight, physical contact or hearing (object permanence);
- Spatial relations between self and objects and between objects;
- Time as it relates to anticipating familiar events.

Preoperational and intuitive period (2 through 7 years)

Children at this stage are working on language acquisition and symbolic thought. They have an explanation for everything that happens. Their perceptions are self-centered and they assume that others have the same thoughts, feelings, and desires. During this period, children develop the following cognitive skills:

- Symbolic or imaginative play, such as pretending one object is another, for example, using a block as a telephone;
- Classification of objects by common characteristics, first by matching and then by function, later according to color, shape, size, and texture;
- Seriation (arranging) of objects according to variations in attributes such as size, length, color, and texture;
- Number concept involving properties of number, measurement, and space;
- Spatial concepts involving location (in/out, on/off);
- Whole/part relationships;
- Temporal concepts related to activity schedules and causality.

Transactional model of development

Sameroff and Chandler (1975) explain child development as a dynamic, reciprocal interaction—that is, a transaction between inborn biological characteristics and environmental influences. A child's innate attributes include physical traits, aptitudes, learning style, and temperament. Environmental influences include social factors (people, interactions, and expectations) as well as physical factors (materials, equipment, and settings). The match between the child's attributes and the environment determines the quality of the child's developmental outcome. If the environment is a good fit with a child's characteristics, learning and development will be optimal. The challenge to early education programs is to create the best match between learning environments and children's characteristics.

The transactional model may be the most effective for working with a very young child with a visual impairment. The child with low vision and the child who is totally blind will each have a different way of learning. We can help develop a good match by assessing a child's characteristics, those of the

environment, and how the child influences the environment and vice versa. The process of identifying the specific needs and learning opportunities for each child must involve family members, program staff, specialists, and, of course, the child.

Issues related to developmental milestones

Caregivers often want to know when they should expect children with visual impairments to reach certain developmental milestones. When do children who are blind begin to walk? When do they learn how to use a cup? It is difficult to give precise answers to these questions. We know that all children vary in their rates of development and that each child is different.

A child who is visually impaired will certainly need more time to acquire developmental skills that are related to vision. It is not surprising that children who are visually impaired show delays in early development if milestones of sighted children are used for assessment. However, a recent study based on parent reports of selected skill acquisition found that many infants with visual impairments and no other disabilities acquired some developmental skills on a schedule similar to sighted infants. Infants with visual impairments and additional disabilities needed more time to acquire these skills: fine motor development was the most delayed, and there were some differences in the order of skill acquisition. Thus, what may seem like a delay could be a different sequence of developmental skills that is natural for children who are visually impaired (Ferrell et al., 1990).

Previous research has provided some information on when children who are visually impaired usually acquire certain developmental skills. Overall, these findings indicate that infants who are visually impaired are at risk for developmental delays. Fraiberg (1977) studied ten infants who were blind with no other disabilities and found that they developed locomotion and object permanence at a later age than sighted infants. Research with larger numbers of children included those with other disabilities (Reynell, 1983), or a majority of premature infants (Maxfield & Buchholz, 1957; Norris et al., 1957). However, differences in purpose, in research methods, and in size and composition of sample populations severely limit the application of findings from these studies to other children with visual impairments. More importantly, this research emphasizes the unique learning needs of very young children with visual impairments.

Considerations for infants who are visually impaired

With the diagnosis of a baby's visual impairment, a family may be juggling confused and difficult feelings, decisions about medical interventions, and questions about the future. Establishing caregiving routines will be important for both baby and caregiver. Finding ways to interpret and

respond to a baby's behavior will encourage responsive caregiving and help a baby develop trust. Talking to a baby during caregiving routines will develop an association between the good feeling of having needs met and the sound of a caregiver's voice. Other consistent sensory cues include the way a baby is handled and held, the smells and textures of caregivers and caregiving activities, and the tastes of familiar food and drink.

In the absence of eye contact and gaze, infants need alternative ways to maintain contact with primary caregivers and to recognize familiar people. Ways to do this include talking to the baby, having a special way of touching the baby, helping the baby touch the person's face, and wearing a special cologne.

Infants who are visually impaired may seem passive and uninterested in the world because visual stimulation first motivates interaction, then reaching, and later, crawling. Infants who are blind require more time than sighted infants to initiate self-directed movement and locomotion. This delay seems related to the absence of visually directed reaching, limited practice in hip and trunk rotation in different positions, and to later development of object permanence. We can encourage movement by calling to the baby, providing other sound cues, using toys with sounds, playing "come and get me" games and by touching the infant's hand with a desired object to encourage reaching and grasping.

Vision loss limits observation of cause-and-effect relationships: for example, "I do this and then this happens." Infants who are visually impaired cannot see the connection between what they do and what happens. They need enticing opportunities to act on objects which provide tactile and auditory feedback. We can encourage infants to explore objects using both hands and to manipulate objects with different shapes, textures, sizes, and sounds. Playing give-and-take games, performing finger plays, and singing infant songs encourages imitation and social interaction.

The understanding that a sound indicates the existence of an object develops later than object permanence based on visual experience. When

A child who is visually impaired will certainly need more time to acquire developmental skills that are related to vision.

an infant accidentally drops a toy, helping her to search for it will help with object permanence. Playing early games such as "Peek-a-boo," "Where's mommy?" and "Come and get me" is a fun way to encourage search behaviors.

Climbing in and out of a box, crawling under a table, and climbing up on a sofa are examples of active movement and exploration experiences which give an infant an understanding of spatial relationships. Infants who are visually impaired must have these opportunities in order to develop related concepts. Predictable routines and verbal explanations help the infant develop a sense of time and causality as well as trust. Let the baby know you are going to leave and what is going to happen.

Considerations for toddlers who are visually impaired

Providing opportunities for toddlers who are visually impaired to develop a "Me do it" attitude takes planning and thought. It takes time and encouragement to allow them to do things for themselves. Some toddlers may need physical guidance, modeling, or other prompts to initiate an activity. Other children seem naturally curious and want to do everything. Safety is a concern, especially when toddlers cannot see. No one wants a child to bump into things, make mistakes, or spill drinks. However, toddlers learn through total immersion in consistent routines involving physical activity, play, and daily living skills.

Toddlers who are visually impaired benefit from simple explanations of ongoing activities, verbal prompts to guide participation, and recognition of what they have done. They need encouragement to explore the environment actively in order to practice motor skills and to develop concepts related to spatial relationships. Playing with various toys in different ways, using one object to obtain another, and overcoming obstacles to get desired objects are a few examples of how problem solving is developed through exploration. At this age, toddlers will be interested in "feelie" or "scratch and sniff" books, switch-activated toys that provide a variety of sensory feedback, and objects related to different functions.

Caregivers can support learning at this age by having clear and reasonable expectations, by allowing the child to do what she can in her own way, by gentle introduction to new experiences, by facilitating interaction with others and the environment in different ways, and by providing comfort and security for an emotional toddler.

Considerations for preschoolers who are visually impaired

Vision loss limits opportunities for a child to naturally develop classification, seriation, conservation, and other cognitive skills. Preschoolers who are visually impaired need opportunities to develop concepts through tactual exploration, discrimination, and comparison. In

particular, they need to develop an understanding of whole/part relationships, auditory discrimination, localization, and memory. They need to use nonvisual sensory information to develop a greater understanding of their environment and of themselves. How does a preschooler who is blind find out about the differences between boys and girls? How does she learn to identify with girls?

Preschoolers who are visually impaired often have difficulty in social interactions with other children because they have little or no access to facial expression, body language, and have limited cooperative play skills. They do not know how to begin or how to participate in conversations. They may use pronouns inappropriately, ask questions in a repetitive and meaningless way, and use many words without really understanding their meaning.

These preschoolers will benefit from activities that focus on turn taking, developing conversation skills, and activities which have clearly defined beginnings and endings. At this age, children learn through concrete experiences that stimulate curiosity, discussion, questions, and play with other children.

Considerations for preschool programs

A developmentally based preschool program uses developmental milestones and sequences as a basis for curriculum and assessment. Learning opportunities include creative, cooperative, and imaginative play; daily tasks such as cooking, snack time, and clean-up; art and messy play; structured and unstructured activities; story time; and activities which focus on language development and other preacademic concepts and skills. Activities are developmentally appropriate, such as those based on children's developmental ages as determined by stages and milestones. They also tend to be child-initiated and play-based while encouraging exploration, making choices, and problem solving.

In recent years some special education professionals have questioned the value of focusing solely on a developmental approach: Can we assume that children with disabilities follow the same developmental sequence as children who are not impaired? Do developmental milestones adequately identify the critical skills that a child needs in order to participate in various situations? If not, then another theoretical approach is needed to guide us. One alternative is to focus on what the child needs to learn at a particular age and the ways to develop age-appropriate skills in meaningful activities.

Programs serving preschoolers who are visually impaired should consider the appropriateness of activities in terms of the children's chronological ages, developmental levels, and specific learning needs. To illustrate this point, a four-year-old who is blind may be at a sensorimotor level in her interactions with objects: She enjoys shaking and banging objects on surfaces. It is not chronologically age-appropriate for her to play with a baby rattle, but she could practice these schemes using a tambourine during music time. In contrast, it may be chronologically age-appropriate to use plastic fruit in the house area of the preschool room. However, these objects will be experientially and developmentally inappropriate and therefore meaningless for a preschooler who is totally blind and unfamiliar with real fruit.

For some children, going to preschool is a strange and even scary experience. This is their first time away from home and a familiar caregiver. Preschoolers who are visually impaired often need extra attention to feel comfortable and secure in a new place. Some children need a gentle period of transition to separate from parents. Children usually become more comfortable as they develop relationships and get to know preschool routines. At this point, preschool becomes an enjoyable place filled with opportunities for discovery and fun.

Children learn about daily living skills, how to play, how to interact socially, and about gender differences by observing what people do and by imitating them. Children who are visually impaired do not learn these skills through observation or by merely hearing about them. Teachers need to adapt traditional preschool activities to address these children's different ways of learning. The following section provides specific suggestions for meeting these unique learning needs. Evaluate the environment from the child's point of view:

- Does the child know what will happen, where, and when?
- Is the room organized to encourage independent movement, exploration, and play?
- Are room decorations and other wall displays within easy reach of children who are totally blind, and at eye level for children with low vision?
- Do the materials provide the sensory information necessary to teach selected concepts and skills?
- Are there reasonable, clear, and consistent expectations and limits?

Evaluate the environment from the child's point of view: Do the materials provide the sensory information necessary to teach selected concepts and skills?

Selecting preschool materials

- ◆Provide toys that produce auditory feedback when manipulated, such as musical instruments and cause-and-effect toys.
- ◆Provide real objects when possible, especially when children are learning new concepts: for example, use real fruit and vegetables instead of plastic ones.
- ◆Provide toys that encourage sharing, turn taking, and playing with other children: for example, playground equipment, blocks, and cars.
- ◆Provide creative play materials that are related to real life experiences and develop an understanding of various roles: for example, cooking, shopping, going to the doctor, and going out to eat.
- ◆Provide pictures that are appropriate for children with low vision: for example, colorful, simple illustrations rather than cluttered, glossy photographs.
- ◆Provide objects that invite tactile exploration, manipulation, and discovery.

Teaching strategies

- ◆Encourage an understanding of whole/part relationships by providing the "big picture" whenever feasible. Consider how vision loss restricts a child's perception of an object or activity. Without vision, a preschooler may have a concept of "car" limited to a car seat unless she has the opportunity to safely explore, touch, and manipulate different parts of a real car. Similarly, this child's knowledge of snack time may be merely eating a cookie and drinking milk unless she knows about the total activity from set up to clean up. Consider what a child's idea of "apple" might be if her only experience with apples is eating apple slices. How different this would be if she had the opportunity to pick apples from a tree or select them in a store; to handle, eat, and hear about different kinds of apples; and to help make apple sauce, apple pie, or a fruit salad.
- ◆Use familiar routines and a predictable schedule that will help children learn specific skills during naturally occurring situations, that will motivate them to participate, and that will provide them with a "big picture" of the activity. A preschool calendar will become meaningful to preschoolers who are visually impaired if it includes objects and braille to represent activities.
- ◆Model and facilitate interaction with other children. Show a child how to invite another child to play, share toys, take turns, help a friend, express affection, and resolve conflicts. Show sighted preschoolers how to be a sighted guide and how to get the attention of a child who is visually impaired by using her name. Show preschoolers who are blind how to get a friend's attention and how to participate in games with other children. Allow the children time to play together, to learn from mistakes, and to come up with solutions while you provide gentle and unintrusive support.

- Encourage active involvement in typical preschool activities, creative play, snack time, story time, cooking, art, dressing, hand washing and toileting. Allow children to do what they can for themselves. Assign specific jobs during group activities: for example, helping to get materials, handing out materials, and cleaning up. Show children where things are kept, how to get them, and how to put them away. Use hand over hand guidance to demonstrate how and what to do in daily living skills. When feasible, give the child who is visually impaired extra time to complete a task. Break tasks down into small steps to support a child's participation and mastery. Provide opportunities for children to make choices. Teach children who are visually impaired specific ways to take care of daily needs: for example, by putting the index finger in a cup to measure when to stop pouring, and by feeling for labels to find the back of clothing.
- Provide opportunities for children to develop sensory skills. These include tactual discrimination of textures which are characteristic of relevant objects, auditory discrimination of people's voices, sounds related to activities, animal sounds, musical instruments, and other sounds in the environment. Encourage listening skills during story time, transitions to other activities, and in following directions.
- Provide opportunities for children to develop hand strength and dexterity. Participation in daily living skills, in manipulative and constructive play, and in arts and crafts is a natural way to develop these skills.
- Provide meaningful language to help preschoolers who are visually impaired develop concepts. A non-stop verbal description of everything that is happening all the time is not meaningful to most preschoolers. It is most important to provide critical information that the child can understand and use. It is also important to encourage conversation, questions, and responses. Talk about key aspects of what is going on in the room so the preschooler will understand what is making sounds, what is happening now, and what will happen next. Provide specific directions by naming objects and places instead of relying on "this" and "that," and "here" and "there."
- At story time, select books that will engage children: a "feelie" book or one with clear, colorful pictures for children with low vision, Twin Vision books with print above each line of braille for children who are blind, and, if appropriate, provide objects that are named in the story for the children to handle, smell, listen to, or taste.

- Encourage children with low vision to use their vision by holding materials at whatever angle or distance is best for them, by encouraging them to move close to you at story time, by using simple line drawings and colorful pictures rather than glossy photographs, and by providing lighting that meets their vision needs.
- Help preschoolers who are visually impaired develop an understanding of their vision loss and their own answers to questions about their eyes. Sighted peers are naturally curious about their classmates' eyes. Providing simple explanations and discussions of individual differences will help children become comfortable with their own differences and with accepting those of others.
- Provide positive feedback in ways that children like and understand: for example, through praise, gentle touches on the arm, or a little hug.
- Explain activities, what children will do, and your expectations for behaviors in a clear and understandable way.
- Finally, and most important, provide opportunities for children to learn, to succeed, and to have fun.

Provide opportunities for children to develop hand strength and dexterity.

Bibliography and resources

Erikson, E. (1950). *Childhood and society.* New York: Norton.

Ferrell, K. A., Trief, E., Dietz, S. J., Bonner, M. A., Cruz, D., Ford, E., & Stratton, J. M. (1990). Visually impaired infants research consortium (VIIRC): First-year results. *Journal of Visual and Blindness, 84*(8), 404-410.

Fraiberg, S. (1977). *Insights from the blind.* New York: Basic Books.

Maxfield, K. E., & Buchholz, S. (1957). *A Social maturity scale for blind preschool children: A guide to its use.* New York: American Foundation for the Blind.

Norris, M., Spaulding, P. J., & Brodie, F. H. (1957). *Blindness in children.* Chicago: University of Chicago.

Piaget, J. (1952). *The origins of intelligence in children.* (M. Cook, Trans.) New York: International University.

Reynell, J. (1983). *Manual for the reynell-zinkin scales.* Windsor, Berkshire, UK: Nfer-Nelson.

Sameroff, A. J., & Chandler, M. (1975). Reproductive risk and the continuum of caretaking casualty. In F. D. Horowitz, M. Hetherington, S. Scarr-Salapatek, & M. Seigel (Eds.), *Review of child development research 4*, 197-244. Chicago: University of Chicago.

Suggested resources for activities

Chen, D., Friedman, C. T., & Calvello, G. (1990). *Parents and visually impaired infants.* Louisville: American Printing House for the Blind.

Ferrell, K. A. (1985). *Reach out and teach.* New York: American Foundation for the Blind.

Fewell, R. R. (1983). Working with sensorily impaired children. In S. G. Garwood (Ed.), *Educating young handicapped children* (pp. 235-253). Rockville, MD: Aspen.

Fewell, R. R., & Vadasy, P. F. (1983). *Learning through play.* Allen, TX: DLM.

Moore, S. (1985). *Beginnings.* Louisville: American Printing House for the Blind.

Morgan, E. (1992). *Resources for family centered intervention for infants, toddlers and preschoolers who are visually impaired* (Vols. 1 & 2). Logan, UT: Hope.

Mary Ellen McCann, M.A.

Chapter two Professionals who work with children who are visually impaired

Many individuals with special skills can work with a child who is visually impaired. Some of these specialists act as consultants, while others provide direct service to the child and family. In order to aid the child most effectively, professionals must work together, share their expertise, and coordinate their services. An understanding of the specialists and their roles makes it possible for everyone to work as a team, and to successfully treat the whole child.

Classroom teacher

Depending on the placement of the child, the classroom teacher may be a special education teacher, a teacher of the visually impaired, a regular classroom teacher, or a resource specialist. The primary role of the teacher is to provide educational instruction to the child. She works closely with specialists such as the speech therapist or the orientation and mobility specialist to adapt the classroom environment to the child's unique needs.

Teacher of the visually impaired (TVI)

A teacher of the visually impaired can serve as the child's classroom teacher or provide services as a consultant. Regardless of the setting, she delivers specialized instruction and services to meet the educational needs of the child. When the child's primary disability is a visual impairment, she often has the responsibility of coordinating the required services. In cooperation with the classroom teacher the TVI will:

- Provide specialized instruction such as pre-braille training;

BEST COPY AVAILABLE

- ◆Assist the classroom teacher in the development of classroom activities and materials;
- ◆Conduct low vision and functional vision assessments;
- ◆Evaluate the need for adaptive equipment such as magnification devices, computers, closed circuit televisions, and introduce the child to the equipment;
- ◆Teach the child to use the equipment as well as their residual vision throughout their environment;
- ◆Consult with the classroom teacher to make physical adjustments in the classroom to meet the needs of the child;
- ◆Serve as a resource to parents and professionals by providing inservice, materials, and information.

Orientation and mobility specialist (O&M specialist)

The O&M specialist can serve as a consultant or provide direct service. This professional's primary goal is to help the child develop the skills necessary to move safely in her environment. As these skills are mastered, the child's independence is enhanced. An O&M specialist teaches the child to use environmental information such as sound, smell, and tactile clues to improve mobility skills for increased independence. The O&M specialist has the responsibility to:

- ◆Consult with parents, support other service providers and educators, give the child information about the environment, and teach movement techniques;
- ◆Provide the expertise to modify the home and school environments, encourage independent travel skills and make suggestions about independent travel routes the child can follow in the school environment;
- ◆Conduct functional vision assessments emphasizing the child's residual vision;
- ◆Prepare and use materials and equipment to develop orientation and mobility skills.

BEST COPY AVAILABLE

Teachers of the visually impaired provide specialized instruction such as pre-braille training.

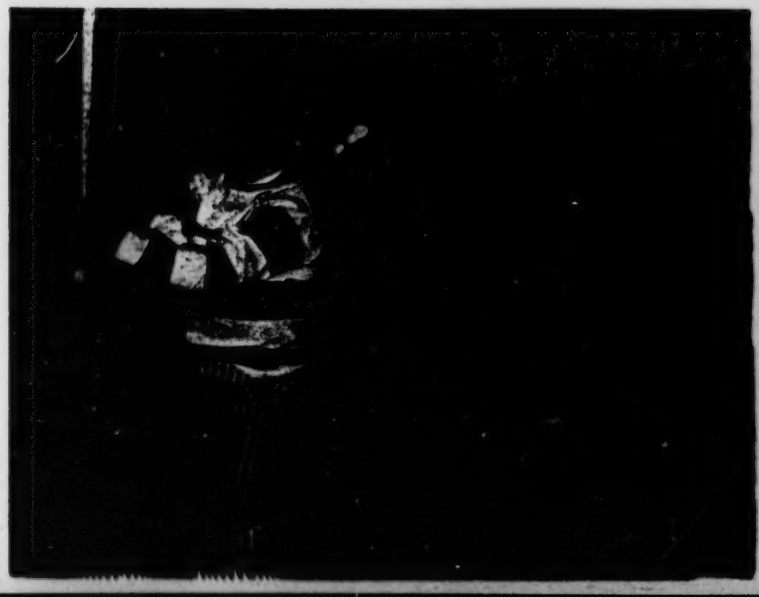
Speech and language pathologist

The speech and language pathologist specializes in the development of communication skills. Individual therapy, group therapy, evaluations, and consultations are all part of this therapist's role. Language is one of the primary means of learning about the environment, and the acquisition of language skills has long-range effects on the social and emotional development of the child who is visually impaired. Because visual impairments can have an impact on language development, the speech and language pathologist plays an important role on the team by sharing his or her knowledge of normal language development and by providing language programs designed for the specific needs of the child. The speech and language pathologist can also serve as a consultant to make available speech and language materials and resources. In early intervention programs this consultant can work with parents and staff to evaluate early language and speech skills and recommend appropriate activities.

Occupational therapist (OT, or OTR for a registered therapist) and Physical therapist (PT, or RPT for a registered therapist)

A child with a visual impairment may be seen by an OT or a PT. These professionals receive different emphases in their education, however, when working with young children their approaches are similar. They evaluate and treat gross motor, fine motor, and sensory integration skills. They also evaluate and treat developmental and orthopedic problems as well as other physical conditions which can affect a child's ability to acquire age-appropriate skills.

OTs and PTs can provide direct intervention to a child or play a consultant's role for the classroom teacher and family. In both settings they design programs which facilitate optimal performance in self-help, play, or school related activities. Their goal is also to promote independence in the child's motor development. The therapist evaluates the child's ability to interact with the environment, and determines how the visual impairment affects the child's body movement during play or other activities. If a child



The goal of the occupational therapist is to promote independence in the child's motor development.

uses atypical or immature movement patterns, the OT or PT should be involved in planning a program for the child. An OT or a PT can make recommendations for special equipment such as wheelchairs and braces, as well as construct positioning aides such as splinting or other adaptive equipment.

Physical therapy assistant (PTA) & Certified occupational therapy assistant (COTA)

The PT and OT assistants work under the direct supervision of a PT or an OT. They may work with children on an individual basis, or assist the therapist in group activities.

Their role is to implement the plan developed by the specialists. They do not assess or make recommendations except under supervision.

Ophthalmologist

An ophthalmologist is a medical doctor who concentrates on the diagnosis and treatment of defects and diseases of the eye. He or she treats these conditions by prescribing lenses, administering medication, and performing surgery. Some ophthalmologists receive special training in pediatric ophthalmology.

Occupational therapists evaluate and treat gross motor, fine motor, and sensory integration skills.

Optometrist (O.D.) The optometrist is a licensed nonmedical eye specialist who measures visual acuity and prescribes glasses, contact lenses, and special optical devices. This professional can also perform low vision assessments. He or she is not a medical doctor and cannot prescribe medication or perform medical procedures.

Low vision specialist A low vision specialist may be a teacher of the visually impaired, an ophthalmologist, or an optometrist. This specialist works to improve a child's use of residual functional vision, and helps make the child more independent by using vision as a channel for learning. The low vision specialist assesses the degree of usable vision and recommends low vision devices such as magnifiers and tinted lenses for use in the classroom.

Many people work with a child who is visually impaired, and this fact underscores the need for the service providers to work together as a team. Because there is often an overlapping of responsibilities, the team should share ideas and data. A cooperative effort increases everyone's efficiency, and makes possible an effective intervention with the child.

Bibliography and resources

Dominguez, B., & Dominguez J. (1991). ***Building blocks: Foundations for learning for young blind and visually impaired children.*** New York: American Foundation for the Blind.

Alonso, L., Moor, P., & Raynor, S. (n.d.). ***Mainstreaming preschoolers: children with visual handicaps.*** Washington, D.C.: Department of Health, Education and Welfare, Head Start Bureau.

Scholl, G. (1986). ***Foundations of education for blind and visually handicapped children and youth.*** New York: American Foundation for the Blind.

Jose, R. (1989). ***Understanding low vision.*** New York: American Foundation for the Blind.

Pogrund, R., Fazzi, D., & Lampert, J. (1992). ***Early focus.*** New York: American Foundation for the Blind.

Susan S. Simmons, Ph.D.
Ann Stout, M.D.

Chapter three The eye

The purpose of this chapter is to offer you a basic understanding of how the visual system works and what can cause visual impairment or total blindness, either during fetal development or soon thereafter. The chapter is divided into two parts. The first section describes the eye itself, its components, and how they work together to give us the experience of sight. The second describes the most common visual problems experienced by young children, the surgeries and other medical procedures available to correct them, and some of the visual behaviors you might observe in a child with each condition.

The eye and how it works

The diagram on the next page is a greatly simplified version of the parts of the eye and provides a reference when describing the different eye conditions that result in visual impairment.

Light rays pass through the transparent front of the eyeball, called the cornea, the clear portion that a contact lens rests on. The light then passes through the opening in the iris (the pupil—the black part), and then through the lens, which is suspended behind the pupil. The lens thickens when we look at something up close (such as a book) and becomes thin when we focus on something distant. The function of the lens is to focus the rays of light on the retina, the delicate neural lining at the back of the eye which has the consistency of plastic wrap lining a mixing bowl. The retina, which is the main structure for vision in the visual system, is composed of thousands of photoreceptor cells. These cells carry messages

from the retina to the optic nerve (much like a telephone cable with many smaller cables wrapped together) and then to the visual center of the occipital lobe of the brain, where the message is translated into a visual image.

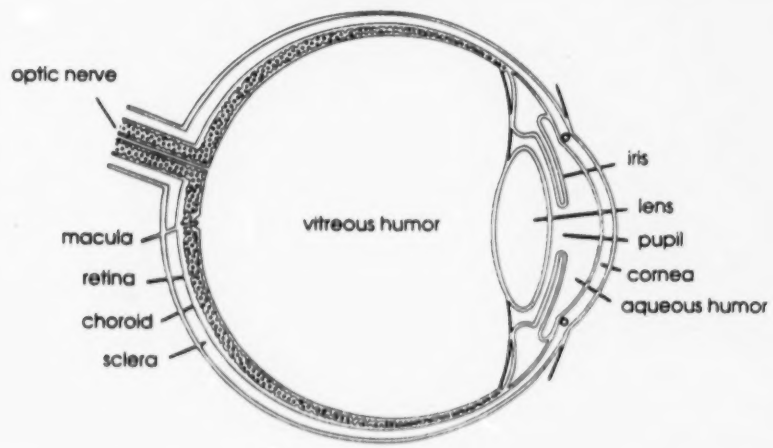
The macula (the central area of the retina) is the part of the eye that makes possible fine detailed central vision, color vision, and depth perception. The peripheral retina (the outer edges of the retina) provides the kind of vision we use to walk around our environment, to keep track of where we are in space, to see objects at a distance, and to see at night.

The choroid is located between the sclera (the white outside covering of the eyeball) and the retina. It consists of numerous blood vessels and its function is to provide nourishment for the retina.

Just in front of the retina is a mass of clear, gelatinous fluid called the vitreous humor. This thick fluid helps the eye keep its shape so the rays of light can be focused properly. Without this gelatinous fluid, the eyeball would not maintain its shape. There is another kind of fluid in the eye which is much thinner. This, the aqueous humor, circulates within the front of the eye providing nourishment to the tissues.

Damage to any of these structures will diminish the efficiency of the visual system. The extent of vision loss will depend on which structure is affected and how extensive the damage is to that part of the eye (Scott et al., 1985).

The structure of the eye



BEST COPY AVAILABLE

Terms commonly used when discussing various levels of visual impairment

There are two possible ways to define legal blindness. One is that in the best eye, with the best correction (meaning with glasses on) the person's vision is measured to be 20/200 or worse. This means, with glasses on, using the best eye at 20 feet, this person could see what a person with normal vision could see if they were standing 200 feet away. The second possibility is a person whose field of vision is restricted to 20 degrees or less. Field losses or restrictions can only be measured in terms of how far the eye is from the area being viewed. For example, if a person with a field restriction of 20 degrees was standing approximately one yard from a wall, the area he would be able to see would be approximately the area of a dinner plate. If the distance between the wall and the person is increased, the area viewed will also increase. Likewise, if the space is decreased, the area viewed will decrease. Even a person who is categorized as legally blind may have a great deal of usable or functional vision.

Visual acuity

Visual acuity is a term used by ophthalmologists and optometrists to describe how clearly individual can see. This determination is made in a doctor's office with controlled lighting and is usually described with a fraction such as 20/20. Normal vision is described as 20/20. This means at 20 feet away from the chart in the doctor's office the person can see print, letter or pictures that are three-eights of an inch high. When reading records of visually impaired children, you often see 20/200, 20/400, etc. The top number refers to the distance from the chart, 20 feet. The bottom number refers to the size of the target being viewed. It corresponds to the distance a normal eye could be from the chart and still see that line. So 20/200 means at 20 feet the person being examined could read or describe the line that a normal eye could see at 200 feet. Thus the person with 20/200 vision can certainly see, however there will be significant blurriness. Below the measurement of 20/400 or 20/600 it is not uncommon for the doctor to make the notation "CF at 5'" meaning that the patient could count the doctor's fingers at five feet away. This measurement is not very useful for young children as they usually cannot count. Beyond this measurement are the following notations listed from more to less vision:

HM—Hand motion (seeing the movement of an object)
OP—Object perception (ability to perceive an object)
LP—Light perception (ability to perceive the presence of light)
L proj—Light projection (ability to perceive where light is coming from)

These notations are seen on the eye reports of young children who are visually impaired due to the fact that it is very difficult to obtain an acuity from young children, especially if they are non-verbal.

Functional vision or visual efficiency

This level of visual functioning is most commonly measured by a teacher of the visually impaired or an orientation and mobility specialist. Functional vision refers to how the child uses his vision. This ability varies quite a bit from one child to the next, even though visual acuity may be the same. Additionally, while the visual acuities between children may be recorded as being the same, functional vision may vary greatly due to field deficits and other problems such as nystagmus, the involuntary rapid movement of the eyeball. However, as the child learns what to look for and what to expect in the environment, his ability to use functional vision may substantially improve. Some children are not very motivated to use the vision they have, and others are exceptionally efficient.

Common eye disorders in young children

Most young children's eye problems are congenital (from birth), either as a result of heredity or incomplete development due to a virus or other illness during pregnancy. The visual impairments of a small percentage of children result from an accident, illness, or visual problems that do not develop until after birth.

Retinopathy of prematurity (ROP)

Previously known as retrolental fibroplasia (RLF), ROP is a disease of both eyes found in premature infants. In premature infants, the retinal blood vessels which grow outward from the optic nerve have not completely developed. Oxygen stimulates the immature blood vessels of the retina to grow excessively and this can cause bleeding. This can result in traction—pulling on the retina—and, ultimately, detachment of the retina from the back of the eye. If the retina is detached it cannot function properly, and blindness results.

Medical implications of retinopathy of prematurity

Surgery has been successful in improving the outcome in some children with ROP. Cryotherapy, which involves freezing parts of the peripheral retina with a cold probe, can stop the abnormal vessel growth, if done early. Once retinal detachment occurs, the outlook is very poor, although surgical repair may provide some light perception or object perception. Even so, the child may be very nearsighted or experience distorted central vision due to retinal traction.

Educational implications of retinopathy of prematurity

These children often go though a series of surgeries to reattach the retina. Sometimes one eye is more affected than the other. However, most children in programs for the visually impaired have severely limited vision. Some children will have light perception and others may obtain significant functional vision, depending upon the amount of retina that remains attached.

BEST COPY AVAILABLE

Congenital cataracts

A cataract is an opacity or cloudiness of the lens. The normal lens is clear, and its function is to focus the light rays on the retina. If the lens becomes cloudy, passage of light to the back of the eye will be obstructed. In a normal eye the pupil appears to be black in the same way that the uncurtained window of a vacant house appears black from across the street. Hang a white curtain behind that window and it will appear white. Similarly, when the lens behind the pupil is opaque the pupil appears to be a grayish-white (Scott, 1985).

Medical implications of congenital cataracts

If the opacity in the lens is very dense, the child will not be able to see and the lens must be removed by making a small incision at the top of the iris. Without the natural lens, the eye will not be able to focus, and the child must use an artificial lens, either in the form of glasses or contact lenses. Ophthalmologists can implant artificial lenses in adults, but in small children this procedure is still experimental.

Educational implications of congenital cataracts

The vision of children with cataracts is markedly improved by glasses or contact lenses. Even so, not all young children accept them very readily. A drawback to glasses is that the child will need to be taught to turn his head in order to notice information in his peripheral field of vision since the glasses only cover the area immediately in front of his face. This will become easier once the child has had practice and begins to mature. Cataracts may effect color vision, especially if the cataract is not removed.

Congenital glaucoma

Congenital glaucoma is characterized by increased pressure in the eye. In a normal eye, the vitreous humor is manufactured and discharged at the same rate, keeping the pressure within the eye constant. In glaucoma, the inflow of fluid is normal, but the outflow is impaired, and pressure builds up. Fluid exerts pressure on the white outside covering the of the eye, or sclera. Unfortunately, if the pressure within the eye is not relieved the fluid exerts pressure on the optic nerve, which causes progressive and irreversible damage and loss of vision, first in the peripheral field and then centrally (Scott et al., 1985).

Medical implications of congenital glaucoma

Prescription eye drops can be used to temporarily control the increasing pressure but multiple surgeries may be required. Although there are several techniques to reduce the fluid pressure in the eyeball, they basically involve the insertion of very small

A cataract is an opacity or cloudiness of the lens.

BEST COPY AVAILABLE

tubes to regulate the outgoing flow. Since glaucoma can also be the result of other eye conditions, the treatment may vary. Normal pressures are less than 22mm Hg. "Hg" is the symbol used to denote the element of mercury indicated on the device used for measuring eye pressure. Very high pressures (over 40 mm Hg) may sometimes cause pain.

Many children with congenital glaucoma are irritable because the changes in pressure can be painful. A gradual reduction in peripheral vision may occur if the medical interventions are not successful. Prolonged pressure can cause the eyeball to increase in size, resulting in nearsightedness. With the first symptoms manifesting as peripheral loss of sight, untreated and/or uncontrollable glaucoma can result in total blindness.

Educational implications of congenital glaucoma

In addition to possible severe nearsightedness and constricted visual fields, in some types of glaucoma, children may be sensitive to light—photophobia. This is due in part to the disease itself and to the ocular drops used to control eye pressure. Teachers and parents should use appropriate lighting in the room when working with children. A teacher of the visually impaired should be consulted for recommendations in this area. Care should be taken when outdoors, especially in bright or hazy sunlight. Unfiltered rays can cause pain, and can also reduce visual efficiency. Excessive tearing may be seen in children with glaucoma, however, this is more common if the glaucoma is uncontrolled.

Coloboma

Coloboma is a structural abnormality of any part of the eye. It is caused by the failure of two layers of tissue to close or complete growth during fetal development, leaving a cleft or space between the two pieces of tissue. The visual problems resulting from colobomas are directly related to the part of the eye involved. Although colobomas can involve any part of the eye, there are four structures that are most commonly involved. Below, these abnormalities are grouped together in terms of the types of vision problems they present.

Coloboma of the iris

The most common coloboma is that of the iris. It is usually only a cosmetic problem, although if the lens is involved it will cause distortion of vision. For older children and adults, in order to make the iris look normal, cosmetic contact lenses can be custom-made to the individual's needs.

Coloboma of the choroid, retina, and optic nerve

Coloboma of the choroid is the congenital maldevelopment of part of the choroid, retina, or optic nerve. This leaves a space in the tissues where they would normally have closed together. The coloboma space is situated between the nerve and the bottom of the eye. In the area of the coloboma, the eye doctor can see a large, white region where part of the choroid and

retina would usually be. Visual acuity can be greatly diminished in that area of vision due to malformation of the retina. Oftentimes, strabismus (misalignment of one or both eyes—sometimes referred to as "cross-eyed") and nystagmus (involuntary, rhythmically repeated movements of one or both eyes) are present. Depending on the tissue involved, results of the coloboma can vary from peripheral field deficits to severe loss of vision. When the optic nerve is involved, vision loss can be severe.

Medical implications of coloboma of the choroid, retina, and optic nerve

Unfortunately, there is no surgery or treatment to correct this problem. Glasses are often prescribed, but they may not be of much help. Occasionally, optic nerve colobomas can be associated with other brain abnormalities which can be detected with CAT scans.

Educational implications of coloboma of the choroid, retina, and optic nerve

Both severity and type of visual loss varies greatly between patients. Abnormalities involving the choroid and retina may not result in serious vision loss. Optic nerve colobomas can result in visual problems ranging from minor field deficits to severe vision loss. The teacher of the visually impaired often has a better idea than the ophthalmologist about what the actual level of visual functioning is, since it is difficult to determine this based on the physical extent of the coloboma. The teacher of the visually impaired observes the child in various functional settings and can better assess functional vision. By taking into account the child's visual field, the teacher can present visual material in the appropriate place, ensuring optimal viewing angle.

Optic nerve hypoplasia

Optic nerve hypoplasia is the underdevelopment of the optic nerve in utero. The cause is not known. It may happen in one or both eyes, and visual ability can vary greatly. When a child has an underdeveloped optic nerve accompanied by poor growth due to hormonal defects, he may have septo-optic dysplasia—optic nerve hypoplasia associated with midline brain abnormalities. This may involve the pituitary gland, which controls sugar and water metabolism, the growth hormone, and the thyroid hormone.

Medical implications of optic nerve hypoplasia

There is no treatment for optic nerve hypoplasia, but care must be taken to address associated hormonal defects, which could be life-threatening. All such children should receive an evaluation by an endocrinologist, and their growth rate should be carefully followed.

Educational implications of optic nerve hypoplasia

As mentioned previously, this condition can result in severe visual acuity loss or it may involve only slight acuity deficits. Likewise, peripheral field losses can range from subtle to severe. Children with this diagnosis often respond well to vision stimulation activities. The parents may have been

told there is no hope for functional vision. However, high illumination, bright colors, high contrasts, light-box activities, and other vision stimulation activities are often quite successful in helping these children optimize their residual (useful, not merely remaining) vision.

Optic nerve atrophy

Atrophy implies "dying back" of a previously normal structure. Optic atrophy is partial or complete death of the optic nerve, which makes the nerve look pale instead of a healthy pink. In children it can stem from hydrocephalus (increased fluid in the brain), congenital infections, or major head trauma. It is sometimes an inherited tendency which gradually progresses over time.

Medical implications of optic nerve atrophy

Unfortunately there is no treatment for this condition, but care must be taken to determine the cause and prevent possible progression of incomplete cases. Children with hydrocephalus and partial optic atrophy may develop progression if hydrocephalus reoccurs. In nonhereditary cases, the condition is relatively stable once the damage is done. The exception to this is in congenital cases, where some improvement may occur up until two years of age.

Educational implications of optic nerve atrophy

The visual impairment in optic atrophy varies from minimal to profound, depending on the amount of damage. It is difficult to predict vision based on the appearance of the optic nerve alone. The most common problems are visual acuity loss, reduced color perception, and visual field deficits. Children with profound losses are more likely to have nystagmus.

Nystagmus

Nystagmus is the involuntary, rhythmically repeated movements of one or both eyes. The movements are often horizontal and both eyes are generally affected.

In jerky nystagmus, movements in one direction are usually slow, followed by rapid return to the original position. This type is usually associated with internal ear, neurological, or drug intoxication problems.

In pendular nystagmus (also called ocular nystagmus), the movements are of equal speed, size, and duration in each direction (Kirk, 1981).

Medical implications of nystagmus

It is important to determine if nystagmus is due merely to a motor problem (as in true congenital nystagmus), or to poor vision, as with sensory nystagmus. Pure motor nystagmus with otherwise normal eyes starts at birth and limits vision to the 20/40 to 20/100 level. Sensory

nystagmus starts around three months of age and is secondary to underlying poor vision. In acquired cases it is important to determine the cause. Occasionally, acquired nystagmus will be the sign of a brain tumor or other neurological problem.

Educational implications of nystagmus

The presence of nystagmus alone does not always indicate reduced visual function. Children with nystagmus generally have decreased central vision, but good peripheral vision. Control of their nystagmus generally improves with age, and babies learn where their null-point is: that is, how they can still their wiggly eye by turning their head in a certain direction or by nodding their head (Harrell & Akeson, 1987). Visual performance may improve as the child matures and learns how to best use his residual vision.

In congenital motor nystagmus, near vision is often better than distance vision because the effort of converging (bringing the eyes together) to focus up close helps to lessen the nystagmus.

Albinism

This hereditary condition produces a deficiency of pigment in the retina, iris, and choroid. It is more obvious in dark-skinned than light-skinned races. The condition may involve the entire body (complete albinism) or the eyes (ocular albinism). With ocular albinism, vision may be normal or impaired. In complete albinism, the retina, iris, and choroid are affected, and vision is greatly reduced. There is great variance among children diagnosed as being albino because there are many forms. In all types, nystagmus is present. The macula is underdeveloped and as a consequence there is no depth perception. These children are usually photophobic and should be protected against glare or excessive light.

Signs of ocular albinism are present at birth. The eyebrows and lashes are white, the color of the iris varies but is usually light. Since the macula is underdeveloped, central vision is affected and results in an associated "searching type" nystagmus.

Medical implications of albinism

Tinted glasses to reduce glare or contact lenses with painted iris areas and small, clear or lightly tinted pupils may be recommended. These children are very prone to ultraviolet damage to the skin and eyes and should be protected from sunburn at all times with clothing or strong sunscreen.

Albinism is a hereditary condition that produces a deficiency of pigment in the retina, iris, and choroid.

Educational implications of albinism

Vision is generally found to be in the 20/70 to 20/200 range, but visual acuities at the 20/400 level are not uncommon. A major characteristic of albinism is photophobia. Although these children are highly functional and can usually participate fully with sighted peers, it is very important that a teacher of the visually impaired be involved so that reading and any necessary accommodations can take place with the least amount of inconvenience for the child. Independent mobility might not be hindered since acuity losses are usually not that severe and peripheral vision is usually intact. Although the macula is underdeveloped, color vision usually is not affected. Special tinted glasses such as NoIR, Corning, or other lenses offer "wrap around" protection from glare and are available in tints useful for indoors as well as outdoors. In addition to sunglasses, hats and visors are often very useful to assist in reducing the glare of bright sunshine. It should be noted that snow can also cause a great deal of glare, so sunglasses should be worn on sunny winter days as well.

Microphthalmia

Microphthalmia is an ocular condition referring to an eye that is smaller than normal. Microphthalmia as a singular ocular abnormality may be found with other ocular abnormalities or syndromes.

Medical implications of microphthalmia

Microphthalmia is often associated with coloboma of the eye. It can also be due to chromosomal anomalies, congenital infection, or environmental factors. In rare instances mental retardation, deafness, heart and kidney defects are associated with microphthalmia. Children with this condition need careful evaluation by a pediatrician to address any of these potentially serious problems. In hereditary cases, genetic counseling is indicated for both the children and adults alike.

Educational implications of microphthalmia

The visual impairment in microphthalmia varies from total vision loss to normal visual acuity.

Leber's congenital amaurosis

This is a congenital retinal abnormality that can cause profound visual loss and nystagmus. The retina may look normal or have altered pigmentation. Diagnosis is made with the electroretinogram (ERG) and can show no response of the retinal photoreceptors to light stimulus.

Medical implications of Leber's congenital amaurosis

This is a recessively inherited condition, which means that each child in a family has a one-in-four chance of manifesting the condition. Genetic counseling for the parents is recommended.

BEST COPY AVAILABLE

Educational implications of Leber's congenital amaurosis

Visual acuity can range from relatively good 20/80 to light perception only. Therefore, the educational services will vary, depending on the amount of residual vision. Photophobia is also quite common and should be addressed to ensure optimal visual functioning.

Cortical visual impairment (sometimes called Cortical blindness)

Cortical visual impairment refers to damage to vision that occurs beyond the visual pathways, essentially in the occipital lobe of the brain. The child's eyes may be fine when the ophthalmologist examines them, but the problem exists in the brain's ability to translate visual signals into meaningful information. The cause is often not known.

Medical implications of Cortical visual impairment

There is no medical intervention, but improvement can occur for up to two years after the onset, even up to the level of 20/20. Due to the nature of this disorder, ongoing assessment of the child's visual performance is essential.

Educational implications of Cortical visual impairment

Children who have cortical visual impairment often seem to be nearly or totally blind when first evaluated. These children frequently respond very well to vision stimulation techniques such as the use of bright lights in a very dark room and the use of toys with strong color contrasts. These techniques are used by a teacher of the visually impaired and should be given some time to be of benefit before evaluating the child's level of functional vision.

Children with this condition usually respond better to a familiar object. It is advantageous to ask parents to bring one of the child's favorite toys or objects from home for classroom use.

Bibliography

Batshaw, M. L., & Perret, Y. M. (1986). *Children with handicaps.* Baltimore & London: Paul H. Brookes Publishing.

Harrell, L., & Akeson, N. (1987). *It's more than a flashlight!* New York: American Foundation for the Blind.

Isenberg, Sherwin (1989). *The eye in infancy.* Chicago: Year Book Medical Publishers.

Jose, Randall T. (Ed) (1983). *Understanding Low Vision.* New York: American Foundation for the Blind.

Kirk, Edith (1981). *Vision Pathology in Education.* Springfield, IL: Charles C. Thomas.

Scholl, Geraldine (Ed). (1986). *Foundations of Education for Blind and Visually Handicapped Children and Youth: Theory and Practice.* New York: American Foundation for the Blind.

Scott, Eileen, Jan, J.,& Freeman, R. (1985). *Can't Your Child See?* Austin: Pro-Ed.

Vaughan, D., Asburt, T., & Tabbara, K.F. (1989). *General Ophthalmology (12th Ed.).* East Norwal, Connecticut: Appleton & Lange.

Fernanda Armenta, Ph.D.

Chapter four The family

As individuals who interact with families dealing with a child who is blind or visually impaired, we often struggle with the question of what we might be able to do to facilitate their adjustment. By recognizing the extent to which the birth of a visually impaired child may influence the experience of families, the service provider can gain a more complete understanding of the dynamics of the interaction between the family and service delivery systems.

A vision diagnosis may be given during pregnancy, at birth, or days, months, even years after the child is born. Receipt of a diagnosis of visual impairment sets a family on a journey of restructuring in terms of both practical and fundamental life issues. The beginning can be a difficult time. Learning that a child is blind or visually impaired is likely to disrupt whatever internal balance existed previously, and will require changes in the family's capabilities. The family is likely to encounter feelings that seem insurmountable and unending. Parents may be struggling with the frustrations of an unclear diagnostic medical picture, or with the difficulties of a clear one. The situation may render parents doubtful about their own skills, and wondering if they possess the abilities required to meet the challenge of raising a child with a visual impairment (Chernus-Mansfield et al., 1986).

The purpose of this chapter is to assist service providers in gaining knowledge and insight about the impact of a vision diagnosis on the family system. This section provides a philosophical framework for understanding

the family experience and offers practical ideas for delivering more effective services. The title of early interventionist or service provider encompasses any individual providing educational or therapeutic services. Such services may be rendered on a one-on-one basis, in an integrated classroom setting with perhaps only one child requiring services, in a more segregated classroom setting with an entire class of special-needs children, or on an individual basis in a home-based setting.

The impact of a diagnosis of visual impairment affects the entire family network. Siblings may experience neglect and have feelings of jealousy as a result of the time, energy, and attention given to the child. These feelings result in confusion when coupled with fears about the possibility of also "catching" whatever caused the visual impairment. Additionally, guilt over being a "normal, healthy child" may occur. Guilt may also be felt by a sibling as a result of simply thinking and feeling all of the things he or she experiences. Jaimie was the nine-year-old sister of a small boy who was visually impaired. One day, after being asked one more time to share her toys with her brother and not make him cry, she approached her father. With tears in her eyes she said, "Daddy, would you love me better if I were blind, too?"

Grandparents often feel the strain of a diagnosis two-fold: they may identify with the feelings experienced by the child's parents regarding the diagnosis and they may also feel helpless as they see their own son or daughter suffering but are unable to alleviate that pain. Friends and extended family members may experience conflict over competing reactions: the desire to render support to the family, the thought that they are somehow ill-equipped to do so, and the fear that they may say or do "the wrong thing." Such factors can leave a family feeling isolated at a time when they most need support. One mother related her version of a lonely and difficult beginning:

BEST COPY AVAILABLE

The goal of early intervention is to assist the family in their process of restoring balance.

My child's vision problems make his eyes and face look a little funny. When he was born, my parents took care of informing our loved ones of what was going on. The result of this was that beyond my own parents, no one else called the hospital or came to visit. Because of all the medical complications, we stayed in the hospital for six weeks. After three more weeks at home, my son's condition finally stabilized. Around that time, my best friend Mary finally called. She asked if she could come visit. I said yes. When she got to my house, she held me and cried. She apologized for not having been around. She told me she knew I was hurting, but she really hadn't known what to say. She was afraid she might do or say the wrong thing. I told her, "Mary, if only you had called and said what you just told me. That would have been enough."

Initiating a partnership

If one is to succeed in leading a man to a certain goal one has to take care to find him where he actually is and begin there; to be of real help to a person, one must understand more than he does, but in the very first place one must understand what he understands.

Søren Kierkegaard

The goal of early intervention is to assist the family in their process of restoring balance. Such work begins by helping the family assess their priorities, concerns, needs, and resources. At such a time, advice and comments intended to pacify parents can be counterproductive. Helpful but unrequested suggestions may be perceived as harsh criticism or further confirmation of parental feelings of ineptness. The service provider needs to approach the family with an empathic, affirming, and nonjudgmental style.

Along with the vision diagnosis, a feeling of numbness may occur. Overcoming this sorrow is a feat in itself and requires a tremendous amount of endurance. In working toward adjustment, parents often do some very important work, even though they may feel quite out of control while doing so (McCollum, 1984). The first step in working with a family consists of allowing them to express their feelings, thoughts, and concerns. This can be done by simply engaging in a dialogue with the family by asking questions and making statements that indicate genuine interest and caring. Validating the experience of a family helps normalize an otherwise incomprehensible ordeal. One parent described the following.

> When everything started happening, I remember feeling so many things…I often felt dizzy. I would break down crying for no reason, fight with my husband, scold my children. I became a cleaning fanatic, too. I washed windows, curtains, emptied drawers and cupboards, even cleaned-out the attic and the garage! I didn't want to go around like things were fine and dandy. I was suffering and I couldn't even pretend I wasn't. I thought I was going crazy! I would ask myself, 'Why can't you handle this?' Then I learned that other parents' reactions were similar to my own. I felt such comfort. All along I'd felt so abnormal. Now I know everything I thought, felt, did or said was perfectly normal. We're all very normal people dealing with unusual circumstances in our own unique fashion!

The next step consists of helping the family identify their existing competencies so they can begin to build upon their strengths. Before initiating any plans about where the family is to go and what they need to get there, the service provider must first understand exactly where the family is. Factors that need to be taken into account include socioeconomic status, marital and family relationships, number of children and birth order of the child with the impairment, type and clarity of the diagnosis, availability of appropriate services, additional ongoing stressors with which the family is dealing, and the cultural meaning of the handicap.

The service provider approaches the family with a well-equipped bag of tools for early intervention acquired through various means. These tools include academic resources, technical training, hands-on practice, and knowledge acquired through practical life experiences. These tools enable the provider to make a skilled, qualitative evaluation of the child's developmental needs based on standardized assessment and formal observation. An intervention plan is then designed. However, when the needs of a child are conceptualized and formulated without input from the family, it is possible that the service plan will not adequately address the needs and concerns of individuals who will be directly impacted by such a plan (Slents & Bricker, 1992).

A competent early intervention system of care must be based on the principle that parents are a vital source of information on the child's development and should be encouraged to participate in their child's assessment and educational activities. The service provider who values the family's perspective is in the strongest position to be of help. The service delivery plan needs to be firmly grounded in a collaborative effort between the family and the professionals (Cross et al., 1989).

For a service provider to adequately assess where to begin to intervene, information must be gathered on the following (Slents & Bricker, 1992): How does the family perceive the impact of the diagnosis? What is their outlook? What are the strengths, resources, and natural support systems available? What changes and adaptations are being required of them? How are they meeting those demands?

Additional stressors that may accompany diagnosis include medical issues, financial pressures, intra-family strains, work and time conflicts, and the very personal struggles with confusing questions and emotions that may arise for each individual involved. These various demands can tax the physical and emotional resources of a family.

A comprehensive service delivery plan includes appropriate assessment, support building, identification and development of resources, goal setting, and the outlining of action steps. Since families are involved in an ongoing process of adaptation, their outlook and resources will vary over time and as new challenges are met. In turn, the role and interaction of the service provider will change as the family changes chronologically and developmentally. As stated by Janet, an intelligent and well-educated woman who had two older children (ages 9 and 19) and was now dealing with her 13-month-old daughter Sally's vision diagnosis:

> I know I've parented before, but never like this. I feel brand new at it. There is so much to know, so much to learn. People don't seem to understand me when I tell them that I am the same age in parent years as Sally is in child years! Only as she grows and develops new complications or new areas of strength can I too develop new information and skills to meet those challenges. I'm growing right alongside Sally. Right now, I feel like an infant who is learning all about this new world of disabilities and how to interact in it. I've got so much further to go.

The aim of early service provision is to help the family equip themselves with the skills they will need to confront the ongoing challenges with which they will be presented. Each family will in turn modify and build upon this early foundation as they progress throughout the life cycle of their child.

The life cycle

Adjusting to a vision diagnosis may include pain, discomfort, and imbalance at certain points in time, coupled with joy, growth, and new-found strengths at others. At any rate, families are involved in an ongoing process of adaptation that will continue throughout the life cycle. Initial acceptance, once it occurs, is a victory. However, the family will need to work toward acceptance at various points in time (Chernus-Mansfield et al., 1986).

The family is likely to experience significant life-transition events during early childhood, school age, adolescence, and adulthood. Each stage raises specific challenges which must be addressed. These challenges may be due to things that unexpectedly occur, or events that are regularly planned for but do not occur. One woman reported re-experiencing great sadness when her son turned sixteen. She realized he had reached that significant age when most teenagers prepare to drive a car. Her son was healthy and bright. She said many things had "gone right." However, realizing that he would never be able to drive was difficult—both for the mother and the son. The family had to once again adapt to something new, and was quite aware that such things would come up again. Feelings, concerns, and frustrations that are experienced during early childhood are likely to be re-visited when facing the challenges posed by each new stage. The family adapts by learning new skills and building upon old ones. During the provision of early intervention services, we experience a time-related version of the family's process of adjustment.

The process of dealing with a diagnosis of visual impairment is a developmental one. Each family and each individual member has their own personal style for dealing with the trials and tribulations of a diagnosis. Each will have their own time lines for development. Most importantly, there is no typical reaction (McCollum, 1984). It is unfair to label families, to tell them what they are or "should be" feeling. When individuals are dealt an unexpected card in life, they tend to rely on old coping tools that have worked in the past. It is important to acknowledge and respect a family's method of coping without labeling or assuming. Ask questions and seek clarification for yourself, then use the information you are presented with to help structure and validate the experience of the family (Zuniga, 1992).

Additionally, one must respect choices made by the family. Families may view early intervention and the role of the service provider in different ways, thereby defining the limits of the relationship. Families may choose not to openly share their private worlds with a service provider. Emotional support may be sought from different sources, such as extended family, friends, religious leader, or medical doctor. The important thing is that the

family not grieve alone. Successful grieving is dependent upon interactions with other people. The service provider needs to be informed of the special needs of a family, but need not be responsible for fulfilling each and every need.

The grief cycle

During the anticipated arrival of a child, all parents generate dreams and plans about their unborn baby. A diagnosis of visual impairment can deter those plans. The feeling states that can accompany adjustment to a diagnosis have been termed "grief work." Grieving entails the experience of a wide range of emotions that can be part of the normal process of coping with unexpected loss and change. It enables parents to separate from the initial fantasies they had generated for a sighted baby, and replace them with new ones. This process is not a one-time occurrence. Parents relive and rework the various feeling states as new developmental milestones are encountered (Moses, 1983).

There are several models that conceptualize the grieving process. Most are based on the theoretical framework provided by Elisabeth Kübler-Ross regarding bereavement and loss (1983). The principles set forth by these models identify coping as a dynamic process with various situational and personality factors that can interact to modify, accelerate, or slow down the coping process. The following is a simplified version condensing various components of several working models. This is not based on pathological dysfunction, nor does it assume any chronic states which may require further counseling. The grieving process depicted herein describes normal and healthy states that facilitate growth.

Each member of a family is an individual, and individuals feel different things in different ways at different times. The amount of time spent at each feeling state ranges widely from a few seconds to many years, and may vary in terms of intensity and significance. Although theory holds that each

BEST COPY AVAILABLE

Each family and each individual member has their own personal style for dealing with the trials and tribulations of a diagnosis.

parent of a child with an impairment goes through the grieving process, each may experience it in a unique way. There is no one way to grieve so significant a loss as the dreams held for a child.

The beginning... During the initial receipt of a diagnosis, parents have reported experiencing confusion and shock. This experience allows reaction time during which parents can slowly begin to take in the news. From this point forward, a family can begin to deal with the ramifications of the vision diagnosis. As the reality of the diagnosis begins to set in, grief reactions are likely to gain momentum (McCollum, 1984).

The working through... As parents begin to work toward acceptance, they may experience a myriad of responses. Feelings can include disappointment, helplessness, self-doubt, fear, anger, guilt, sadness, loss of control, and depression. These emotions do not exist exclusively or in any particular order. They can be erratic with sudden changes occurring without prior notice or apparent cause. Examining and working through such emotions can help families bond more intensely (Chernus-Mansfield et al., 1986).

Sadness and depression can be experienced to varying degrees. Some parents have reported such an intense depression that their daily basic functioning is impaired. They report difficulty getting out of bed, performing daily duties, a loss of interest in their surroundings, and a listless, lethargic feeling. One woman recalled being unable to draw the curtains and allow daylight into her home in the beginning. She said she felt that the sun was no longer shining for her and her family since her baby would never be able to see it. Other parents report simply noticing a feeling of sadness described as a very low hum that accompanies them throughout their day.

Parents commonly report feeling anger. Anger may prompt parents to examine their principles about what is fair in life. Anger can be turned inward toward the self or directed outwards, toward the child, mate, family, friends, their "normal healthy children," service providers, and religious figures. It can be manifested as blame, either toward oneself or an identified other. As such it is frequently accompanied by guilt, and is further complicated when the individual begins to place value judgments on what they are feeling or how they are feeling it. Instead of simply allowing themselves to experience understandable emotions, parents may criticize themselves for unjustified outbursts, illogical conclusions, or unexpected reactions.

In an effort to make sense of their experience, parents often ask a variety of questions regarding the diagnosis: Why me? What happened? How could this happen to us? What caused this? Parents seek explanations in an effort to re-establish a semblance of control over their own lives. People often believe that if they can understand a thing, they may be able to control it, avoid it, or fix it in the future.

Theological beliefs are often examined during this time. One woman stated that she believed she had been sent a blind child as a test. She said God was testing her and giving her the opportunity to learn new things. However, as her pain increased over time, she came to hold only one question: "God, have you forgotten me?" A parent who feels betrayed, abandoned, or punished by God may resolve to reject their religious convictions. Others may reaffirm their beliefs in an effort to maintain hope and a sense of purpose. Cultural issues are often entwined with religious convictions and result in a complicated interplay. Lydia, an Hispanic woman who grew up in a very religious home, often sat to pray with her mother for her son's well-being. As new complications arose and her son began to experience seizures, the grandmother's prayers became more fervent. With heartfelt pain, Lydia reported that she had been deeply hurt when she realized that her mother's prayers had intensified because the woman believed that anyone who convulsed in such a manner was possessed by an evil or satanic spirit.

Present throughout the entire period of grieving may be a pervasive feeling of anxiety. There are different types of anxiety. One type is based on a realistic perception that a person is threatened by a specific thing. This is observed when parents fears for the survival of their child due to medical fragility. This type of anxiety may also be felt when a family repeatedly receives new diagnostic information and they begin to fear that their child may be exposed to further disabling circumstances. Parents can feel great discomfort knowing there is nothing they can do to relieve their child's critical state. Time, support, and the child's stabilization can help ease such anxiety. Anxiety based on a realistic perception of threatening circumstances can also be observed in siblings who fear that whatever caused the disability in their brother or sister can afflict them as well. Validation of the child's fears, clarifying explanations, comfort, and support can help assuage such fears.

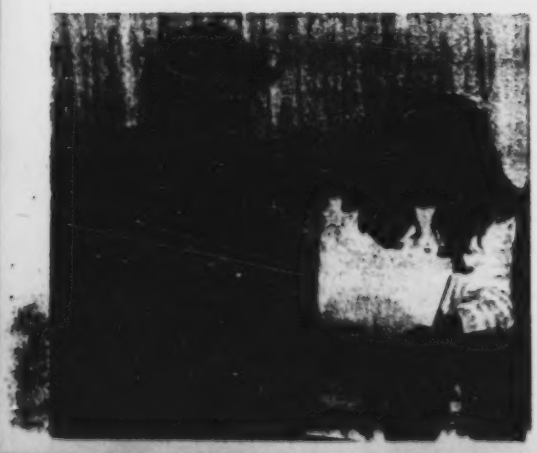
Another type of anxiety is experienced on a moral level. Such anxiety threatens to overwhelm the individual with guilt and shame. Parents may wonder whether something they did caused their child's disability and may experience blame and self-accusation. They may consider self-indulgent behaviors during pregnancy such as sugar, caffeine, alcohol, tobacco, etc.,

as the causes of the disabling condition. At other times parents report wondering whether they are being punished for previous undertakings in their own personal histories.

Finally, anxiety can result from the desire to follow one's impulses during a moment of frustration. Such reactions are observed when parents vent the desire to escape from the ordeal of witnessing their child's or their family's distress. John, a mature young man who had always considered himself a good father and husband, expressed tremendous shame at acknowledging the following:

> When my son, Sammy, was in the hospital he seemed so sickly and fragile. He was born prematurely and only weighed two pounds. He was hooked up to so many monitors and machines. And the doctors kept giving us such a dark and gloomy picture. I thought that if he survived this ordeal he would live such a meaningless and painful life. I would cry and pray that he would simply die so that he wouldn't have to live "that way." Now that I see him so bright, strong and independent, I feel so ashamed that I thought those things. I love him now as I did then. I just didn't know what else...

When a parent reveals such powerful emotions it is important to simply acknowledge his or her human-ness and the courage exhibited by confronting such feelings. Validate feelings. Do not avoid the issues they bring up, minimize the importance of their concerns, or deny that what they have shared with you is truly what they feel. Avoid problem solving or advice giving when an individual simply asks for a warm shoulder to lean on. Anxiety can serve as a mobilizing agent that allows parents to gather their strength in preparation for the challenges that lie ahead.



As service providers, our task is to facilitate their adjustment in a respectful and sensitive manner.

Individuals deal with anxiety in different ways. Emotional, intellectual, or behavioral responses can vary tremendously from one person to another. For example, a parent who fears that he or she will be unable to provide the appropriate learning experiences to stimulate a child's growth may alleviate their anxiety by seeking programs, books or personal resources that provide appropriate early learning experiences. In cases where anxiety is particularly acute, the individual is likely to resort to what are called "coping mechanisms." Coping mechanisms are strategies used by all individuals to reduce anxiety. They are a useful means of self-comfort that can protect the individual and often allow the person the opportunity to regroup—restoring time and energy needed to cope in a more adaptive manner. Knowing what tools a family is using can help us understand them better and give them the needed space to adapt and grow.

The families we encounter have been coping with their daily circumstances in their own individual manner for an entire lifetime. We cannot impose upon them our own ways of coping simply because we believe we know better. Parents reserve the right to maintain their own style of adaptation. Validate parents as knowing individuals who shape their own parenting styles and coping behaviors through conceptual frameworks which they develop about their world and their lives. As service providers, our task is to facilitate their adjustment in a respectful and sensitive manner (Seligman & Seligman, 1980).

When a family is given a diagnosis they are exposed to a variety of systems (i.e., medical, therapeutic, educational, and social services). Each system serves a function and delivers a specific service intended to facilitate a family's adaptation. By virtue of becoming exposed to so many systems, the functioning of the entire family system is suddenly up for analysis and intervention. It seems necessary and appropriate that service providers adopt a more sensitive approach to families. Each family is different by virtue of their own history and background—they are not deficient by virtue of a diagnosis. In order to render programs more effective for use with families, service providers are urged to increase their knowledge of the shared and special issues presented by these populations and integrate this understanding into the context and format of the programs and services provided (Hanson et al., 1990).

Toward resolution...

The behaviors exhibited throughout the coping process are designed to maintain the well-being of family members. These approaches can serve to strengthen the organization and stability of the family unit. As the family begins to actively explore the nature of a diagnosis, group, individual, and community resources are mobilized to help manage the situation and initiate efforts to resolve family hardships. As the family acquires information regarding the actual disability, cooperative efforts are directed toward attaining more clearly defined services. Acceptance of the diagnosis allows a more realistic assessment of its impact on the child's life. A more relaxed attitude prevails as family members become more comfortable discussing and dealing with the diagnosis. At the same time, more active efforts dealing with practical issues may be observed. Families may become more aggressive in their search for services and provisions. As families become enriched by their own ability to cope, they can begin to accept the child's strengths and limitations and begin to see the child as a child first, and disabled second.

As mentioned earlier, the active reworking of issues related to the coping process are re-visited at significant developmental times. These feelings are to be simply recognized and accepted in their full power and legitimacy. Feelings can mobilize. There is nothing to be cured or fixed. Each time grief is re-kindled, fundamental life issues are likely to be examined as steps toward mastery are taken. At times when parents become burdened by stress, they need the individuals within their support network to provide affirmation of their strengths and promote more positive feelings (Seligman & Seligman, 1980).

Practical issues

As families progress, there are specific provisions they may seek. Areas to be covered include clarification of medical information, identifying and coordinating services, advocacy issues (the rights of the child), educational issues (what programs are available), child care and respite, community resources, social services and medical benefits, and information as to the importance of their own role as the expert on their child (Hanson et al., 1990). Inquiries may be made as to special toys to be purchased or activities to conduct in the home that apply to both the special-needs child and siblings. Helpful suggestions at such times are welcomed. Books, articles, hand-outs, videos, resources, and agency or individual referrals may be sought, as well as information on how to access these resources.

Parents should be encouraged to speak out and become advocates for their children. Communication skills and techniques to help parents assert their needs may be helpful. Parents often describe feeling overwhelmed and intimidated when they approach professionals who are important to them

and their child's needs. Such feelings often result in their being unable to ask appropriate questions, report pertinent details, relay specific concerns during appointments, or secure necessary services for their children. Assess the parents' previous interactions with important service systems. Get an idea of whether or not the family has felt competent in dealing with these systems. Understand what issues have led to feelings of incompetency (i.e., distrust of systems or providers, language barriers). Discuss areas of concern and problem solve with the family prior to an important appointment. Preparation such as securing translation or writing a detailed list of questions may be helpful. Modeling communication skills and allowing parents the opportunity to practice newly acquired skills may further their sense of mastery and competence.

Interestingly, when families are asked what they have found most helpful from service providers, their responses include specific information regarding concrete child-related issues, as well as more general concepts. Professionals who inspire confidence, hope and mutual respect are viewed as being helpful and empowering. Parents report comfort and validation when they are treated as competent individuals who can identify their child's needs, strengths, and areas of growth. One parent described the most helpful interaction with a professional as follows:

> I'd sought several opinions from various medical professionals in search of someone who had some expertise with children such as my own. We'd traveled to different cities and finally came upon the one individual who'd had the most extensive experience with children with the same diagnosis as my son—she'd worked with 14 such children. She examined my son then sat to talk with us. She confirmed the diagnostic information we'd already received, but her approach was so different! Previously we had been told that my son's prognosis was very negative. We were told he'd be "like a vegetable, unable to do anything," yet I kept seeing his progress. Institutionalization was recommended both for my son's sake and our family's. We never found comfort in such recommendations, only a sense of alienation and a feeling of being misunderstood. This new doctor did not distort the information with euphemisms or awkward phrases. She was honest and straightforward. She told us the road ahead would be difficult, and that my son's development would be delayed. She also told us we would work together in securing the best interventions in order to maximize whatever potential

> he had. Obviously she believed in my son's ability to grow. We walked away full of hope. We'd finally found someone who was comfortable working with my son, and who was willing to help us identify my son's weaknesses as well as his strengths. She was willing to work for us and with us. Needless to say, she remained our primary physician for quite some time.

Families indicate the need for information. They want to be fully informed regarding their child's condition, the services available and how to acquire such services. Parents report a sense of control when they feel knowledgeable. Families should be informed about the functions of the various service delivery systems they will be working with, and educated as to the service delivery process itself. Consumer awareness and preparedness reduces distortions, surprises and anxiety, and allows the family to make active choices about how their needs will be met.

Empathy, support, respect, compassion, validation, and a sense of hope allow a competent service provider to establish a more positive working relationship with parents. Parents request that a service provider be aware of their life circumstances and the situational variables on which some of their decisions may be based. They want service providers to know that while they are trying to secure the best for their child, they are also trying to secure a well-balanced life for themselves and the rest of their family:

> Laurie had been my daughter Amy's teacher for more than a year. We all loved her dearly. We had a strong working relationship. When Amy turned five, Laurie suggested we direct our energy toward separation and weaning her from her bottle. I understood where she was coming from and was willing to meet her half way. We enrolled Amy in a day program. However, I repeatedly explained that I could not take the bottle away because it was the only way I could comfort her. Amy would wake up crying deep into the night and would not stop until she received her bottle. We all found comfort in that bottle! Shortly thereafter, Amy enrolled in a weekend program where Laurie would also participate. The second night they were together I received a telephone call around eleven-thirty. It was Laurie. She apologized to me and said she understood what that bottle meant to us all. She'd had a very rough time soothing Amy, and the bottle helped everyone get a full night's sleep. She told me I was right—we would begin to work on weaning

> Amy when I was ready. We'd do it slowly and together. That meant so much! She was so validating and supportive. I'd always known she respected my opinion and was on my side, but it really helped to hear her say it.

A child may have additional areas of development which require special services. The multiple needs of a child can best be served when a competent and caring team of individuals works together in a cooperative partnership facilitated through interagency collaboration. A strong working relationship must also be established with the most important team members—the family. When a child is receiving services from multiple sources, it is important to note that following all the recommendations of every service provider may be neither feasible nor possible for the family at times. Additionally, parents should be encouraged to not only identify their own needs, but also to identify the strengths and areas of expertise of the various service providers with whom they are working. They may then prioritize and select what they need, who they choose to get that from, and how they will go about doing so. Parental choices should be encouraged even if we feel they are "doing too much." Again, parents should be the ones setting the pace. One parent relayed how she was able to get her needs met:

> We were enrolled in five programs. Each provided me an opportunity to participate in a parent group. It could have been really draining, but I realized each group leader had different strengths. I began to make specific requests from each. One group leader was great at scheduling speakers. I let her know what my areas of interest were and who I was eager to see. She was great with that stuff. Another group leader was really into advocacy. From her I got all the training I needed about how to represent my child and work with different systems. Then, of course, there was the group where I just loved the members. My life was so busy, socializing was often out of the question, so I got my gossiping and plain ol' fun there! Finally, there was the group where I got my emotional support. They were really there when I needed them, and when I did finally "graduate" I always knew I could come back and get a "tune-up" from this group. The fifth group I chose to leave. I was really getting everything I needed, although some people thought I was crazy doing so much. Now I rarely attend any such groups. It was great that I had them when I needed them and that I could choose to leave them when I felt ready.

Respecting the decisions of parents communicates understanding and facilitates a collaborative working relationship. Parents find it much easier to listen to someone when they too feel heard.

Another resource identified as extremely important to parents is access to other parents. Parents provide for one another an excellent opportunity for identification, support, resources, friendship, a lessened sense of isolation, and wonderful opportunities for learning and sharing. Parent-to-parent connections can be made available through formal channels such as established groups or national organizations, as well as informal avenues such as individuals in their own community.

The parallel process

In order for service providers to work more effectively, it is important not only to understand the impact of the child's diagnosis on the family, but also the impact that the child and the family have on the provider (Seligman & Seligman, 1980). Parents may seek caring relationships with service providers. Working closely with a family, the provider may become not only an integral member of the general service team, but often a significant member of the family's more immediate support network. A close working relationship can often draw the service provider in on a very personal level. Despite training and attempts to maintain professional objectivity, providers may lose distance. It is of utmost importance to keep in mind the rules and ethics of professional conduct, while maintaining one's own sense of balance and well-being. Recognizing one's own feelings and discussing these with a respected colleague or supervisor may assuage tensions, identify roadblocks and provide support and guidance.

As service providers undertake the task of working with a child with a visual impairment and the family, they may find themselves involved in a very interesting triangle. This triangle, which includes parent-child-service provider, is often the source of some very complicated feelings, reactions, and interactions. This complicated interplay is referred to as the "parallel process."

Within this triangle what may be observed is a concurrent mirroring of feelings and reactions by each family member of the triangle. The child may mirror feelings held by the parent (i.e., anxiety), the parent may mirror feelings held by the child (i.e., separation fears), and finally, the service provider may mirror the feelings experienced by the parent (i.e., grief).

Providers can be just as liable to feelings of sadness, hopelessness, frustration, and denial. The feelings encountered by the provider may not always seem obvious, logical or expected. Furthermore, these unexpected feelings may take the service provider by surprise.

Early intervention often requires the service provider to undergo self-assessment. It is helpful for service providers to identify the attitudes, hopes, and fears they hold in common with parents with whom they are working. Service providers can be most helpful to the families with whom they work when they are honest with themselves (Hanson et al., 1990).

Identification and resolution of the experiences of a service provider requires sharing, just as the family's grief and loss require sharing. Issues of adequacy and competence may be raised for service providers who can perceive the needs and concerns of a family, but may be unable to resolve these. A family that is experiencing strong emotions may need time and space to work through these. A sensitive service provider may sense a family's needs, but be fully aware that they can do nothing more than provide space to work through their coping process. It is important for a service provider to know that approaching a family with a caring and supportive attitude may be enough. It is important to note that the issues that have been discussed are intended to raise the level of awareness of the service provider in regard to the family experience. This does not mean that one service provider must have all the answers to a family's problems, nor that a single provider is to be held accountable for meeting every need identified by a family. It simply means that a service provider can be more effectual when approaching a family from a position of knowledge.

Working with culturally diverse populations

The demographics of the United States are in constant flux—the cultural, linguistic and ethnic make-up of this nation is rapidly changing. In California alone, over 90 different language groups have been identified. It is estimated that by the year 2000, those groups now identified as minorities will outnumber what is now the majority in some areas. Projections indicate that approximately 39 million people with a language background other than English will reside in the U.S. in the next century, and nearly 50% of

BEST COPY AVAILABLE

Projections indicate that approximately 39 million people with a language background other than English will reside in the U.S. in the next century, and nearly 50% of all children in many areas of the country will be from ethnically diverse backgrounds.

all children in many areas of the country will be from ethnically diverse backgrounds. As a result, early interventionists will likely encounter many families whose values, language and practices differ from their own (Hanson et al., 1990).

Culture implies integrated patterns of human behavior including thoughts, communications, actions, customs, beliefs, values and institutions of a racial, ethnic, religious or social group (Cross et al., 1989). Cultural background may change the traditional role of service providers as they enter into partnerships with families in planning and implementing early intervention services. A culturally-competent service delivery approach involves the assessment of cross-cultural relations, attention to the dynamics that result from cultural differences, the expansion of cultural knowledge, and adaptations to meet culturally unique needs (Cross et al., 1989). Whereas providers in general are urged to build a strong interagency collaboration when working with children with multiple needs, those working with culturally diverse groups may need to expand those efforts beyond the professional community. Providers may need to work in conjunction with natural and informal helping networks within the minority community. These may include churches, spiritual leaders, healers, neighborhoods, extended family, friends, etc. (Cross et al., 1989).

The effectiveness of an early interventionist working with culturally diverse populations depends on his or her capacity to provide services that are culturally acceptable to families. For service provision to be successful in reaching family and child goals, careful attention must be drawn to the needs of culturally diverse groups (Zuniga, 1982). The importance of culture must be acknowledged and incorporated at all levels, adapting services and programs in a thoughtful, sensitive, and culturally relevant manner (Cross, et al., 1989). This includes taking into account existing differences between the family and the service provider in regard to cultural history, values, language, beliefs, traditional practices, family structure, and socioeconomic status. The development of a culturally competent service delivery approach is cultivated through training, information, modeling, experience, the development of new alternatives, guidance and self-evaluation. Specific areas that are relevant to an understanding of the family's world view include the family's perspective regarding children and childrearing practices, views of disability and its causation, views of change and intervention, medicine and healing, the family and family roles, and language and communication styles (Hanson et al., 1990).

Ethnically diverse individuals are capable of existing within the Anglo-American service delivery system while preserving their own cultural heritage (Armenta, 1992). Individuals and families make different choices based on cultural forces. For services to be effective, these choices must be considered. Acknowledging different cultural perspectives and honoring cultural diversity involves learning how to work effectively within the boundaries that are comfortable for the family. Families are empowered when approached from a stance that communicates faith and trust in their capacity to do for themselves. Effective service providers must also be aware of how ecological factors impact the family. One must understand the restraints and pragmatic issues a family is faced with, specifically when making recommendations for home interventions, the purchase of toys or equipment, and referrals for adjunct services. Knowledge regarding the home environment, active caretakers, financial resources, child care, time limitations and transportation are important when making recommendations.

Culturally diverse groups are extremely heterogeneous and comprise a varied and complex population. Racial, cultural, and language differences exist between groups as well as within groups. Intra-ethnic variations within groups may be based on cultural origins, level and degree of acculturation, generational status, level of education, socioeconomic status, immigrant status, reasons for relocation, type of neighborhood and city of residence, the socialization practices one is exposed to, and the broader sociocultural context of each individual. These discrepancies are recognized by group members themselves, and may result in tremendous boundaries of difference. In some respects the boundaries within groups can be as distant as the boundaries between groups (Armenta, 1992).

For example, one of the groups considered to be the largest ethnic minority is the Latino population. The make-up of this group ranges from non-Spanish speaking Indians of rural Mexico to British descendants of Argentines. Additionally, this group is comprised of individuals from varied backgrounds, such as El Salvador, Puerto Rico, Guatemala, Mexico, etc. Furthermore, the largest subgroup of the Latino population are those of Mexican origin. This group comprises 59 percent of the Latino population. However, the present day Mexican-American culture is also considered to be "a unique product of cultural fusions" with differences based on generational status, socioeconomic level, acculturation, educational level and regional identification. Again, differences in language, attitudes, behaviors, and traditions are as notably apparent between Latinos and other cultural groups as they are within specific Latino subgroups themselves (Armenta, 1992).

It is important to note that the heterogeneity within and between culturally diverse groups is acknowledged throughout the scientific research literature. Nonetheless, minorities are all too often treated as one large, homogeneous group based on broad categorical information that provides recipe-book descriptions about specific groups rather than an understanding of culture and its function in human behavior. Such findings are over-generalized and simply result in new a source of stereotyping. Stereotypes ultimately serve to distort the conceptualization warranted by groups or individuals, and impose severe social limitations and stigmatizations (Zuniga, 1992). Needless to say, such an approach not only hinders the development of a successful working relationship between service providers and culturally diverse families, but also denies the provider the rich opportunity to experience the depth and meaning of each individual family's history.

In order to draw implications about a specific group, we must treat "facts" we read or hear about the specific cultural values and traits of a group as hypotheses to be tested. These hypotheses must then be turned into questions that allow us to explore and further understand the world views held by a particular family (Zuniga, 1992). The service provider must enter the world of the family slowly and respectfully. Respect can be demonstrated through interactions and behaviors that connote awareness and acceptance of difference. Above all, one must treat individuals from culturally diverse backgrounds as individuals first, and members of a cultural group second. We must individualize our encounters with a family and reserve a non-judgmental attitude.

To meet the challenge of working effectively with culturally diverse populations, it is imperative that service providers embrace the notion of difference as viable and acceptable. We have each made our own strides in this direction by choosing to enter into a field where difference is acknowledged and worked with. The service provider must make a commitment to find out what each individual family is like and go beyond stereotypes. Just as we aim to perceive the child as a child first, and as a child who is visually impaired second, we must aim to treat all families with the dignity and respect they warrant as individuals first. We must be cautious to not impose our own views on the family and strive for an

attitude that is less biased and less ethnocentric. We must communicate validation and acknowledgment of difference by letting families know that their culture is perceived as significant and positive. We must identify individual and family strengths and build upon these. Furthermore, we must ask ourselves if our interactions leave the family feeling valued and competent. Ultimately, competence, respect and acknowledgment of difference, compassion, regard, and genuine interest toward a family helps transcend fears and barriers, and are the basis for establishing an effective cooperative working relationship with children with visual impairments and their families.

Bibliography and resources

Armenta, F. (1992). *Latinos and group parent training: A research study with implications for increasing parent participation in group parent training programs.* Unpublished doctoral dissertation, California School of Professional Psychology, Los Angeles.

Chernus-Mansfield, N., Hayashi, D., Horn, M., & Kekelis, L. (1986). *Heart to heart: Parents of blind and partially sighted children talk about their feelings.* Los Angeles: The Blind Childrens Center.

Cross, T. L., Bazron, B., Dennis, W., & Isaacs, M. (1989). *Toward a culturally competent system of care.* Washington, DC: Georgetown University Child Development Center.

Hanson, M. J., Lynch, E.W., & Wayman, K. I. (1990). Honoring the cultural diversity of families when gathering data. *Topics in Early Childhood Special Education 10*(1) 112-131.

Kübler-Ross, E. (1982). *Working it through.* New York: MacMillan.

McCollum, A. T. (1984, February). Grieving over the lost dream. *The Exceptional Parent*, pp. 9-11.

Moses, K. L. (1983). The impact of initial diagnosis: mobilizing family resources. In Mulich, J. A. & Z. M. Pueschel, (Eds.), *Parent-professional partnerships in developmental disability services* (pp. 11-34). Cambridge, MA: Academic Guild Publishers.

Seligman, M., & Seligman, P. (1980, October). The professional's dilemma: Learning to work with parents. *The Exceptional Parent*, pp. 11-13.

Slents, K. L., & Bricker, D. (1992). Family-guided assessment for IFSP development: Jumping off the family assessment bandwagon. *Journal of Early Education, 16*(1), 11-19.

Zuniga, M. E., (1992). Families with latino roots. In Lynch, E. & Hanson, M. (Eds.), *Developing cross-cultural competence: A guide for working with young children and their families* (pp. 331-439). Baltimore: Brookes Publishing.

Margaret A. Hughes, Doctoral Candidate
Diane L. Fazzi, Doctoral Candidate

Chapter five Behavior management

Long before they are able to talk, children have feelings of happiness, love, sadness, and fear. Physical expression and vocalization provide them an outlet for emotions they can't yet express with words. Young children with visual impairments also experience these emotions and behave in ways which test personal, social, and environmental limits. This is a sign of their blossoming independence.

As young children grow they develop a sense of identity that separates them from other people. They take steps to test the limits of what they can and cannot do at school and at home. Although this is a positive process, it sometimes leads to struggles for control between children and their teachers and parents.

Problematic behavior

A child's behavior can be considered problematic when it either disrupts normal family life, or interferes with development, learning, and socialization. When dealing with young children with severe visual impairments we need to remember that they have less opportunity to experience their environment and must learn acceptable behavior without watching others. These children need more help in learning ways to express themselves.

What types of behavior problems do young children with visual impairments display? In general, they display behavior problems similar to those of sighted children, such as issues of control and testing of limits.

BEST COPY AVAILABLE

However, there are a few behavioral problems which are specific to children with visual impairments. For example, they may engage in one or more of the following actions: rocking, eye-poking, hand-flapping and finger-flicking. These forms of behavior are often repetitive in nature. Originally, these behaviors were termed *blindisms*, but it has been found that self-stimulatory behavior is not limited to children with visual impairments. Other children with disabilities such as autism or intellectual impairment may also engage in these behaviors.

Young children who are visually impaired may develop these mannerisms at an early age for purposes of self-stimulation. Rocking provides movement stimulation for the child who is visually impaired with limited mobility. This is referred to as vestibular stimulation—the movement of fluid in the inner ear. Eye-poking can create "electrical" sensations in the eye socket which substitute for visual stimuli. Hand-flapping and finger-flicking are also mannerisms which may be exhibited. For example, some children will rapidly move their hand(s) in front of a light source to create moving contrasts of brightness and darkness.

Self-stimulatory behaviors are sometimes difficult to change and may become habits which persist to an older age. These mannerisms will make learning more difficult, and thus present a challenge to families and professionals. Teachers must challenge themselves to find creative, age-appropriate ways to provide these young children with the stimulation and movement necessary for their optimum development. Movement activities and a stimulating environment should be part of the daily programming in any classroom serving children with visual impairments.

Moreover, in the absence of visual stimulation, some young children with visual impairments have a tendency to let their heads droop and rest on their chests. Very young children may be head-drooping because they are not getting enough experience with activities that develop the necessary muscles for holding the head upright. Unless the child's head is being tilted to maximize usable vision, efforts should be made to increase the amount of time the child holds his or her head upright. When creatively employed, a behavior management strategy can increase the amount of time young children engage in muscle-strengthening activities.

BEST COPY AVAILABLE

Eye-poking is a behavioral problem specific to children with visual impairments.

Assessing behavior problems

The starting point for addressing any behavior problem is to identify the undesired behavior and the setting in which it occurs. This may provide clues as to what causes the behavior. For example, if Katie starts bothering nearby children during the second half of story time, it is possible that the activity may be too difficult for her developmental level, and that her story time should be reduced to a more appropriate length of time. The child's skill level, cognitive ability, and the nature and severity of the impairment must also be considered. For example, Jose, who has a visual impairment, may exhibit increased eye-poking on the playground due to his inability to find a favorite toy. In contrast, Jose doesn't poke his eye during circle time because there are interesting things to feel and experience close at hand.

Once the problematic behavior has been identified, one can determine its severity by answering the following questions:

- How often do I see this specific behavior?
- In what situations or settings does the behavior occur?
- How intense is the behavior? Is gentle pressure being applied or is actual eye-gouging taking place?
- How long does the behavior last?
- Has the behavior occurred over a long period of time?
- Do you expect it to continue, or is it related to a specific activity or event. For example, is the child under stress due to illness or problems at home?
- Does the behavior interfere with the child's learning or socialization?

If you have decided that the behavior is a chronic and severe problem, it is important to observe and record the number of times it occurs during a specific activity and time period. This is called a frequency count (see figure 1). Sometimes it seems like a child is always rocking, eye-poking, or pushing other children. A frequency count will demonstrate how often it really happens. It is also important to take note of things which happen before and after the problem behavior occurs. These factors can provide clues to the cause of the behavior and how to change it.

In a frequency count, the observer tallies the number of times Jose pokes his eye on the playground for a period of one week. The observer might also note that the eye-poking typically starts when Jose is sitting or standing alone. The behavior might seem to be consistently followed by some form of adult attention. A weekly average can be calculated from a daily frequency count of eye-poking and used as baseline data for determining the severity of the problem.

Figure 1 Frequency count for baseline data

Weekly Behavior:	Mon	Tues	Wed	Thurs	Fri	Total	Average
Eye-poking/ Playground/ 20 min	3	2	5	4	6	20	4

Number of times behavior occurred.

Notes: Tuesday—child was parallel playing;
Friday—child sat alone on the playground

A three step behavior management plan

The baseline data collected during the frequency count provides the basis for the evaluation of any behavior management plan. Presented below is a modified version of a behavior management plan proposed by Bailey and Wolery (1984). This consists of a three step plan and employs various strategies to specifically address the needs of young children with visual impairments.

Step 1

- Provide a stimulating environment which is developmentally appropriate.
- Redirect inappropriate behaviors before they escalate.
- Provide consistent limitations and consequences.

These strategies are preventative in nature, and should be used as the first step in a behavior management plan.

Stimulating environment

One way to create a stimulating environment for young children is to provide developmentally appropriate activities and toys. For example, brightly colored toys and contrasting play surfaces are best for a child with low vision. Noise-making toys that are nice to touch should be readily available for a child who is blind. Teachers should provide enough toys and sufficient play space for the number of children in the classroom. This will automatically prevent or reduce the occurrence of aggressive behavior such as hitting, biting, and pinching.

Activities in the classroom should be fun and challenging. Behavior problems may start when children are frustrated by activities which are too difficult, or when they are bored by activities which don't hold their attention. Children who are blind may also engage in self-stimulatory

behavior when they are unable to fully participate in a movement or visual activity with classmates. The way in which teachers design their classrooms, materials, and educational activities can greatly influence this behavior.

Redirection

An important strategy to help reduce self-stimulation is to change the inappropriate behavior into a more appropriate one by using redirective techniques. Redirective techniques are easier to implement in stimulating environments where motivating activities, materials and encouragement are available. For example, a young child who is blind and displays rocking behavior probably needs increased vestibular stimulation. Substituting a rocking chair or swing will provide a socially acceptable alternative. Another preventive measure to reduce the need for rocking is to provide generalized movement activities throughout the day. This will stimulate the vestibular system and decrease the child's overall need for self-stimulation.

Consistent teacher response

Adults in the child's environment should provide clear and consistent responses to problematic behavior. This strategy is very important because most preschool children have not developed enough self-control and have difficulty predicting the consequences of their actions without external guidelines. For example, Sarah throws toys which may injure other children during free play. The teacher and teaching assistant should not respond on one occasion and ignore the behavior on another. They must decide upon a similar response for all episodes. Consistent responses from adults will help young children predict the consequences of their behavior.

If you find that inappropriate behaviors have not been reduced or prevented by the positive structure of your developmentally appropriate classroom, redirective techniques, or the consistency of your own responses, it may be time to try strategies in Step 2.

Noise-making toys that are nice to touch should be readily available for a child who is blind.

Step 2

- Implement classroom rules and a reinforcement schedule.
- Teach children appropriate behaviors.
- Evaluate the effectiveness of the behavior management plan.

This step involves setting up classroom rules and limits as well as implementing a reinforcement program to enforce these rules. In general, a reinforcement is a positive or negative consequence which motivates children to change their behavior. Examples of positive reinforcements include favorite activities, scented stickers, praise, teacher or peer attention, and hugs. Continuous, unpleasant auditory stimuli such as a teacher's nagging can provide negative reinforcement. Both approaches can increase appropriate behavior, but positive reinforcement is the most successful technique.

Classroom rules

It is important to establish classroom rules or set limits for all children in a preschool setting. Rules should be specific and meaningful to both you and the children, and stated in a language that is clear and understandable to young children with visual impairments. You should limit the number of rules to three or four. Finally, and most importantly, the teacher should communicate to the children the expectation that rules are to be followed and will be enforced. For example: "If you hit other children, you will be asked to sit in the quiet zone." By establishing and enforcing rules in your classroom, teaching and learning will be more fun for both teachers and students.

Selection of reinforcers

Several considerations go into developing a reinforcement program to use with an entire classroom or with a child who is having behavior problems. The teacher must select a reinforcement that will help motivate the child to change his or her problematic behavior—one which is acceptable to both the teacher and the parents. It is important to remember that what motivates one child may not motivate another. Here are some simple guidelines to help you choose motivating reinforcers for the child:

- Think about reinforcers or things that motivate most children, young children in particular. For example, praise, pats, hugs, sitting next to the teacher, being first in line, having time to listen to a tape, and eating a snack are reinforcers that most young children enjoy.
- Ask the child's parents about activities or things that the child likes at home. Ask specific questions, such as, "Does Maria have a favorite tape she enjoys listening to?" or "Does Brenda have a favorite snack?"
- Observe the child in many settings during different times of day, and note preferred activities and play objects. This will help you identify reinforcers valued by that child.

- Make a reinforcement menu from which the child can choose. If the teacher notices that a child consistently chooses one type of reward over another, such as swinging versus playing with building blocks, then this might be a motivating reinforcer for that child.

One must put a great deal of effort into identifying and reinforcing appropriate behavior for the entire class. This, in turn, also will reduce the amount of time spent dealing with the inappropriate behavior of one child. For example, by praising all the children for sitting straight and keeping their heads up throughout the school day, the head-drooping of a single child will be automatically addressed.

Teaching appropriate behavior

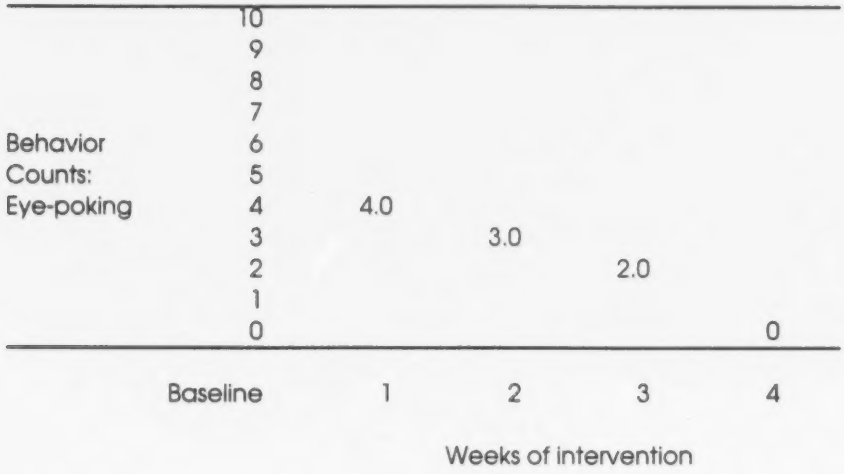
It may be necessary to teach children the specific behavior considered appropriate to a given social situation. This is especially true for children with visual impairments—they are unable to observe positive role models. For example, children who are visually impaired may need to be told to face people when they are speaking to them, or to offer to share a toy or a treat with a special friend. Some children have difficulty learning which behavior is appropriate to a situation. For example, some young children who are visually impaired may need extra help to learn that it is not always okay to touch other children in the classroom, even if it is okay to touch mom or dad at home. This may be especially difficult for young children who are blind, because they cannot observe the many different ways other young children in the classroom get to know one another.

Evaluate progress during Step 2

It is important to monitor the effectiveness of the behavior management plan. Observing and charting the frequency of a child's problematic behavior over time is one way to objectively evaluate the plan. For example, by charting both the initial baseline data of Jose's eye-poking before intervention (figure 1), and the weekly averages of the behavior during and after intervention, one can easily see if the plan has reduced the number of eye-poking episodes (figure 2). If the teacher and parents are satisfied with this reduction rate, then your plan has been successful. If not, reconsider the effectiveness of your reinforcers or consider trying strategies in Step 3.

Figure 2 Charting effectiveness of plan:
Baseline and weekly averages

Student: Jose
Behavior: Eye-poking



Step 3
- Implement moderate-to-intrusive strategies.
- Extinction.
- Verbal reprimand.
- Contracts.
- Time-out.

Implement moderate-to-intrusive strategies

Due to the more complex nature of the strategies in Step 3, they should not be implemented without careful thought as to the long-term effects of the strategy on young children, or without written approval from the parents on the Individual Family Service Plan (IFSP). Behavior management strategies from Step 3 are most effective when designed and agreed upon by teachers, teaching assistants, administrators, and parents.

Extinction

Extinction is the removal of a reinforcer following a child's inappropriate behavior. For example, if we want to reduce behavior such as screaming, we stop reinforcing the child with the attention (reinforcer) that he often receives from screaming. Unfortunately, this strategy does not provide immediate results, and you must be prepared for the screaming behavior to increase before it decreases.

Verbal reprimand

This type of strategy is most effective when paired with positive reinforcement. For example, if we are going to use a verbal reprimand such as scolding, the following process should occur: When a child displays rocking behavior, the teacher scolds the child, and if the rocking ceases, the teacher then praises the child for sitting so nicely. This could be made even more effective if the teacher gave the child an appropriate substitute activity, such as swinging, and then delivered praise.

Contracts

A contract can take the form of a verbal agreement. The If-Then principle, often used in contracts, is exemplified at home when parents say, "If you eat your dinner, you can have dessert." In short, we are either attempting to reduce problematic behavior or increase a desirable behavior by rewarding the child with something even more desirable or reinforcing. The following scenario with a young child who is visually impaired is an example of how to implement a verbal contract. The teacher knows that Brenda often forgets to wash her hands after bathroom time, but also knows that Brenda likes to be the leader in the line and hold the teacher's hand. Thus, the teacher says to Brenda right before potty break, "If you remember to wash your hands you can be the leader in line and hold my hand when we come back into the classroom." Verbal contracts are very effective strategies with young children and can be made more successful if you let the children choose their own reinforcer or reward.

Time-out

Time-out is a specific behavior management technique that is different from providing quiet time or redirecting children's energies to avoid an escalation in behavior. The purpose of time-out is to remove a child from an activity for a specified period of time in order to eliminate any opportunity for positive reinforcement. Although time-out appears fairly simple to implement and is commonly used in special education classes, it is often done incorrectly and does not help reduce problem behavior. The following two conditions should be present before using a time-out procedure. First, time-out should only be used if teachers and parents have failed to identify any type of positive reinforcer to reduce the problematic behavior of the child. Second, if teachers and parents are repeatedly unable to use an identified reinforcer, then time-out may be considered.

BEST COPY AVAILABLE

The purpose of time-out is to remove a child from an activity for a specified period of time in order to eliminate any opportunity for positive reinforcement.

Three common types of time-outs

There are three common types of time-outs employed in classrooms. These are presented in order of increasing severity:

- Sideline observation. The child is removed from an activity and placed on the sideline or in a chair for a certain amount of time. The child can observe or listen but not participate in any activities. It is highly recommended that the amount of time be kept short, from 30 seconds to one minute. Using a kitchen timer is one effective way to help you and the child monitor the time.
- Time-out in classroom. This type of time-out excludes the child from participating in activities and observing other people. A child can be placed behind a screen or in a chair facing the wall. Using a chair facing the wall is less effective because it is difficult to stop the child from turning around. Try to keep time-outs short as the child is losing valuable instruction time. The length of the time-out will vary for individual students, however, if long periods are initially used, shorter periods will rarely be successful.
- Time-out from classroom. This type of time-out is the most severe form, and takes place in a chair in the hall or in another room. Keep the time-outs relatively short for younger children. When children don't stay in the time-out setting, reset the clock and start again. Soon the young child will understand that following the rules will shorten his or her stay in time-out.

A checklist for behavior management

- Provide a structured environment which is stimulating for young children who are visually impaired.
- If a problem behavior occurs, try to identify the events which precede and follow it.
- Make a chart to help you know when the behavior occurs and how often it occurs.
- Redirect behaviors that you want to reduce or eliminate by providing activities which are equally reinforcing.
- Reinforce behaviors you want to increase or continue.
- Time-out is a negative strategy which must be carefully planned and used only as a last resort. When used as a random procedure, time-out will lose its effectiveness.

Three basic principles

There are three basic principles in successful behavior management:

1) Be consistent.
2) Be systematic.
3) Make it meaningful to both teacher and child.

A systematic behavior management plan which is consistently implemented can make teachers and families more comfortable and competent in dealing with problem behavior in young children who are visually impaired. Successful plans are those which are meaningful and reinforcing to teachers, families, and the young children who need your guidance.

As a team, decide what strategy you are going to use and be consistent with it.

Bibliography and resources

Bailey, D.B., & Wolery, M. (1984). *Teaching infants and preschoolers with handicaps.* Columbus, Ohio: Charles Merrill Publishing.

Scholl, G.T. (1986). *Foundations of education for blind and visually handicapped children and youth.* New York: American Foundation for the Blind.

Judy Segal, M. A., C. C. C.

Chapter six Speech and language development

Language is a code with a formal system of rules linking speech sounds with meaning. It is a means of representing people, objects, actions, events, and their relationships, making it possible for us to preserve and share these things in their absence. Language allows you to talk about the apple you are eating today, the one you ate yesterday, and the one you will eat tomorrow. This chapter is designed to help you understand the language development of children who are blind or severely visually impaired, and how you can facilitate language development in these children.

Children need to know about people, objects, actions, events, and their relationships before learning the names of these things. They must understand relationships in the world before knowing the relationships between words in a sentence. When a connection is made, children actively search for the code to communicate what they know. It is easy to understand how difficult it is for a child who is severely visually impaired to discover these relationships since she is unable to observe the world around her.

Language is used for communication. We communicate for many and varied purposes, most of which deal with our interactions with other people in order to maintain contact, gain information, or accomplish goals. Communication provides the means for the exchange of knowledge and

information, the expression of needs and desires, and the assurance of social and psychological companionship. Children learn how to do things with words to maintain contact with others, gain information, and accomplish goals.

Language is learned, but not taught. Children acquire language through very early interactions with others in their environment. They must hear language and understand its functions in order to acquire it. Children must link the speech sounds they hear with their knowledge of the world, that is, their knowledge about people, objects, actions, events, and their relationships. Most of this knowledge is acquired from visual information.

In order to develop language, children must have a need to communicate, a meaning to communicate, and a way to communicate. These are, in fact, the three components of language: function, content, and form.

Function refers to the pragmatic aspect of language—the use or purpose that language serves. Language is used to gain attention, obtain and share information, describe, respond, request, greet, and protest.

Content refers to meaning, or the semantic aspect of language. It encompasses the linguistic ability which enables speakers to use words to code what they feel and know.

Form refers to the structure of language, its sounds or phonology, its word structure or morphology, and its word order, or syntax. Phonology deals with the actual sounds of words. Morphology refers to word forms that allow us to code present tense *talking* from past *talked*, *one* from *many*, and other kinds of meaning via distinct units (morphemes). A morpheme is the smallest unit of meaning in a language. Depending on the meaning being coded, words vary in length from one morpheme *go* to many *go/ing*. Syntax deals with word order and how words are organized. Syntactic rules govern how words can be combined to form meaningful phrases and sentences.

Language is both understood and spoken. Receptive language refers to the comprehension of words, signs, or gestures. Expressive or spoken language refers to the use of words, signs, or gestures to communicate meaning. Children who are severely visually impaired do not see gestures (pointing and reaching), or other forms of non-verbal communication (facial expression, body posture, head movement), and are unable to use these cues to understand or communicate meaning. Instead, they are limited to inflection (intonation) and loudness.

The role of vision in language acquisition

Vision plays an important role in the early phases of a child's language acquisition. Young children rely heavily on visual, non-verbal communication. The child who is visually impaired does not have access to this very important source of information. Visual information is thought to be important in early parent-infant interaction, in providing the child with incentive for determining the meaning of the language she hears, and in providing caregivers with clues about a young child's early verbalizations (Dunlea, 1989).

Interactions usually begin by caregivers using eye gaze and vocalization to gain the infant's attention. Once a face-to-face position has been established, the caregiver, knowing that the infant is engaged, will play with the infant until she glances away. With an infant who is blind or visually impaired, it is difficult for caregivers to determine if they have the child's attention, and it is difficult for the infant to end an interaction in a socially acceptable manner.

Visual information also seems to provide an important link that enables the child to determine the meaning of the language she is hearing. Physical characteristics such as size, shape, and movement enable the child to classify and define objects. For example, she learns that the round objects you roll back and forth are called balls, and that animals with four legs which say, "bow-wow," are dogs. These properties are not available to children who are visually impaired. Caregivers rely on eye gaze and gestures (reaching and pointing) in order to understand early vocalization and to determine the focus of the child's attention. By following the child's eye gaze and taking note of her gestures, caregivers are able to interpret the child's early speech and respond appropriately. The child with a visual impairment is unable to provide these cues for her caregivers.

Vision is the primary source of information for most children. No other sense can stimulate curiosity, integrate information, or invite exploration in the same way, or as efficiently and fully, as vision (XIVth International Seminar on Preschool Blind, 1990). Vision provides instant access to information which is otherwise segmented by time and space (Dunlea, 1989). For the child who is blind or visually impaired, the remaining senses of hearing, touch, smell, movement and taste must function without the integration provided by vision. Therefore, the input from these senses is intermittent, elusive, sequential, and necessarily received in fragments (Santin & Simmons, 1977). Since visual information has been inferred as an underlying mechanism in the process of language development, a lack of this information may delay the acquisition of linguistic skills by children who are visually impaired.

A child enters the world with only one tool of communication: her cry. However, by the time she is five years old, she knows more than 8,000 words, as well as how to put those words to work in meaningful sentences. From birth to age five the child passes through distinct stages of language development. These are usually defined by the number of words a child says in an utterance. In this chapter, five stages are described, and a child's age in months is used to give you a reference point for "normally developing sighted children." It is important to keep in mind that the children you work with may not develop within these age ranges. Children who are visually impaired may enter these stages later and stay in them longer than sighted children.

Prelinguistic stage (birth through 12 months)

Before a child says her first word at around 12 months of age (range 10 through 18 months), she is considered prelinguistic. It is during this stage, through routine games such as peek-a-boo, that she learns the interactive communication mode of turn-taking: You talk, I listen; I talk, you listen. She also learns to make her needs known and to regulate the behavior of others through gesture and vocalization. Although the child is not saying words, she is producing a variety of speech sounds. At first, her vocalization is unintentional and involuntary. Soon, crying becomes intentional. At this time the mother or primary caregiver can differentiate between cries of hunger and cries of pain. At about two months of age the infant begins cooing to indicate pleasure. Cooing gives way to babbling at about four months of age. The child will imitate an adult model if the adult produces sounds already in her repertoire such as frontal consonants made by using both lips: /b/, /p/, and /m/. The child smiles when spoken to, turns toward sound sources, responds to her name, understands "no," and begins to associate words with what she hears. A child who is severely visually impaired has difficulty associating the words she hears with what she is experiencing in her environment. If she is not in some way experiencing the object, person, or activity being talked about, she has no way of connecting it with the word she hears. When she turns toward a sound source, she is not reinforced. If some connection is not provided by her caregiver, the child has no way of linking a sound to its source: for example, a ringing sound with the telephone.

BEST COPY AVAILABLE

Through games such as peek-a-boo, the child learns the interactive communication mode of turn-taking.

One-word stage (12 through 18 months)

Somewhere between 10 and 14 months the child attempts to say her first words and enters the one-word stage of language development. Her words are not exact replicas of adult forms. She simplifies the adult word in several ways: by reducing consonant clusters *play* becomes *pay,* and *stop* becomes *top;* by omitting final consonants, *hat* turns into *ha;* by substituting easier sounds, *tree* becomes *twee;* by omitting unstressed syllables, *telephone* becomes *tefon;* or by maintaining the same articulation for all consonants, *doggy* becomes *goggie* or *doddie.* The child's first words are often syllable duplications: *mama, dada;* or one syllable words—*ball, dog,* and *eat.*

The first sounds (phonemes) a child learns are /b/, /p/, /m/, /n/, and /w/. Her first words consist of things that are important or interesting, and that reflect what she knows about the world: people—mommy, daddy, grandma; food and drink—bottle, juice, cracker; the family pet—dog, kitty; objects—toy, blanket; and activities—hi, bye-bye, and eat.

At this time we find the child overextending and overrestricting words. For example, she may call a dog a bow-wow, and overextend the word to include all four-legged animals. When she overrestricts a word, she limits its meaning. One language researcher observed his son using the word *car* to refer to a moving car passing by a living room window. Parked cars or those driving past other windows were not cars. Older children overextend and overrestrict words new to their vocabularies. For example, some children overextend the word *alive* to inanimate objects such as clouds or rivers because they also move, and overrestrict by denying that trees and flowers are alive.

Although overextension has been observed in the language of young children who are blind, it occurs with much less frequency than in sighted children (8-13% compared to 41%). For children who are visually impaired, the name of something is limited to a particular person, object, activity, or relationship, and does not refer to the larger class of which the referent is a part. For example, the word *ball* refers only to the ball the child plays with. She will not overextend it to include all things that roll or that are round. Once the child has acquired a vocabulary (lexicon) of 50 words (at approximately 15 months, range 13 through 19 months), she starts producing two-word phrases and begins using word order to convey meaning. This marks the beginning of syntactic development and the two-word stage of language development.

Two-word stage (18 through 24 months)

In this stage the child uses adult word order to convey meaning. The sentence structure of Subject + Verb + Object is reduced to two elements, resulting in Subject + Verb, and Verb + Object utterances: "Me kick," or "Kick ball." Another way of describing two-word utterances is through semantic relationships. Children talk about actions, what happened to what, and who does what: "Me fall," or "Bump table." They focus on possession: "My teddy," or "Mommy hat"; and location, "Mommy outside," or "Car garage."

Frequent in early word combinations are expressions of recurrence: "More juice," "Tickle again"; nomination or labeling, "That teddy," "This ball"; and nonexistence, "All gone cookie," "No more" (de Villers & de Villers, 1979). When analyzing the semantic relationships found in the expressive language of children who are severely visually impaired or blind we find that they tend to talk about themselves and what they are doing, or about those actions they can directly experience (Dunlea, 1989).

At this stage of language development the child's speech is described as telegraphic. Sentences are composed of nouns and verbs. Words that do not have direct referents (articles, prepositions, auxiliary verbs) are omitted.

A parent-child interaction may sound like this:

Child: Get truck.
Parent: OK, I'll get your truck.

Child: It drop.
Parent: Oh, it dropped, did it?

Child: Me sit truck.
Parent: I can see you're sitting on the truck.

During this stage of language development the child is able to issue simple commands, ask questions, and initiate, maintain and end conversations (two to three exchanges). Children in this stage of language development often repeat without change the language they hear. For most sighted children this echoing disappears when they learn to creatively use the language they once imitated. However, children who are severely visually impaired continue to repeat (echolalia), much of what is said to them well into their second and third years of life.

Three-to-four word stage (24 through 36 months)

In the three-to-four word stage of language development, the child expands and extends skills acquired during the two-word stage. Patterns learned at the two-word stage are combined to produce longer, more efficient utterances: "Mommy eat" and "Eat cookie" are combined into "Mommy eat cookie." Between two and one-half and three years of age, the child is adding word endings to indicate verb tense: *walk/walking;* to count number and plurality, *hat/hats;* and use prepositions, *in the box, on the table.* She can point to her hair, mouth, eyes, ears, hands, and feet.

The tendency to pick up and use sentence patterns produced by familiar caregivers, primarily mothers, is characteristic of the early language use of children who are severely visually impaired as well as that of sighted children. This often contributes to the misuse of pronouns. For example, the child may say, "I carry you," when she means, "You carry me." These pronoun errors are found in the early language of all children. However, these errors are not long-lasting in the speech of sighted children but are persistent in the speech of some children who are visually impaired.

Complex forms stage (3 through 5 years)

In this stage of language development the child becomes more efficient at accurately conveying meaning and in following conversational rules. She is now able to understand all the possible sentence forms found in adult speech. Between the ages of three and four she is able to sing simple nursery rhymes, relate experiences, "I fall down," and ask many questions, "What?", "When?", "Why?" Between ages four and five the child begins to ask, "How?" and "What if?" questions, has learned more prepositions: *under, beside,* and can answer simple questions after listening to a story.

Some children who are visually impaired seem to have a never-ending store of questions and may ask the same question over and over in quick succession. A child may ask questions because she does not have the language skills necessary to engage in conversation, attract attention, or because she is constantly being asked questions by adults. She understands what happened yesterday, what is happening today, and what will happen tomorrow. By five or six years of age, she is able to produce sentences of varying length and complexity that adhere to rules of grammar. In the following years she will expand her vocabulary and refine the skills acquired at earlier stages.

BEST COPY AVAILABLE

The language development of children with visual impairments is not especially different from that of their sighted peers.

Language characteristics of young children who are visually impaired

The language development of children with visual impairments is not especially different from that of their sighted peers. Although they may take longer to say their first words and might stay in some stages longer, they do develop the linguistic skills which enable them to communicate with others. However, several differences have been identified in the language characteristics of children who are visually impaired. The most common of these includes difficulty with pronouns, frequent questioning, and the use of verbalisms and echolalia.

The term verbalisms describes a child's tendency to use words for which she does not have first-hand sensory information. For example, when she talks about a red ball or uses the word *see*. A child who is severely visually impaired has a distinct advantage in referring to a ball by its color, and so is able to get what she wants. The use of verbalisms was first thought to indicate "incoherent and loose thinking" in children and adults who are visually impaired (Cutsforth, 1951). Later researchers proposed that visually based terms are not necessarily meaningless although these meanings are obviously not the same for sighted children. There are many words that sighted children use which they do not completely understand.

Echolalia is observed in many children between the ages of 18 and 24 months, and consists of a child's repetition of what has just been said. It is more common and more pervasive in children who are visually impaired (Dunlea, 1989).

Three kinds of echolalia have been observed: immediate, delayed, or mitigated. Immediate echolalia is the instantaneous repetition of what has just been said. Very often the child uses this when she does not understand, or is attempting to take a conversational turn and maintain contact when she does not know how to respond. Delayed echolalia refers to the repetition of language heard earlier in association with a particular object or event. The child may repeat those words or phrases whenever she comes in contact with that object or when the event reoccurs. Echolalia is mitigated when repetition of the original utterance is slightly modified. The child may say exactly what was said before but might change the intonation pattern. For example, when asked, "Do you want juice?"

BEST COPY AVAILABLE

The term verbalisms describes a child's tendency to use words for which he does not have first-hand sensory information. For example, when he talks about a red ball.

with the rising intonation of a question, she may respond, "Do you want juice" with the falling intonation that marks a statement. Mitigation implies some degree of comprehension on the part of the child.

Between the ages of two and four all children go through a stage during which they incessantly ask questions. Many children who are visually impaired stay in this stage for a longer period of time. Questioning serves an important function for children who are visually impaired and provides them with a means of maintaining contact and gaining attention. A sighted child can use vision to maintain contact with others by looking toward them and pointing, or by sharing a smile. These behaviors are not available to children who are visually impaired.

Questions are often a way children express their feelings. For example, while returning home from the dentist's office a child may express her fears by asking the same questions over and over again, "Are we going home now?" or, when hearing an unfamiliar sound, she may ask, "What's that? What's happening?" A child may repeat these questions after they have been answered.

Children sometimes ask questions that have nothing to do with what is being discussed. The child who is visually impaired may develop a repertoire of questions which are useful for beginning conversations or for when she is at a loss for words but still wants to maintain contact with her listener. These questions do not allow her to learn very much about other people, and they, in turn, are not able to learn much about her.

Complex forms stage (3 through 5 years)

Mastery of the use of pronouns is difficult for most children. Unlike a person's name, the meaning of a pronoun depends upon who is talking, who is being talked to, and what is being talked about. Pronouns are even more difficult for children who are visually impaired because they cannot see what is being discussed. By the age of three a sighted child is able to use pronouns correctly. It often takes a child with a visual impairment an additional year or two to learn how to use pronouns correctly.

Facilitating language development in children who are visually impaired

Children learn language by listening to, talking with, and watching people in their immediate environment. They need to link the words they hear with their knowledge of the world and the events they are observing or participating in. Things children see in their environment (context) and nonverbal cues (gestures, facial expression, eye gaze) provide clues to help them understand and respond to what is being said. For example, when a parent asks, "Can you shut the door?" the child follows her parent's eye gaze toward the door. With knowledge obtained from previous

observations and explorations, she knows that doors can be opened and closed, and she may understand from the parent's intonation that a request has been made. If the door is open, she closes it (Shatz, 1974). The child does not understand the meaning of each word or the grammatical structure of what was said, but through context and nonverbal cues she is able to solve the puzzle. From this example, it is easy to understand the disadvantage posed to a young child with a visual impairment. These clues are lost without the aid of vision.

Facilitating the language development of such a child requires a group effort from all significant others (parents, family members, teachers, specialists), and anyone else who has regular contact with the child. When we talk to young children we tend to use what language researchers have called "motherese." We employ short, simple, and correct sentences, raise the pitch of our voice, and exaggerate our tone. We tend to stress the last word in a sentence and use a great deal of repetition. For example, when introducing a ball to a child we might say, "Here's the ball," "It's a big ball," or "Let's play ball." In addition to the use of motherese, there are several ways to encourage language development in preschool children who are visually impaired.

Suggestions for encouraging language development at home and in the classroom

- Look and listen. Observe the child's activities and responses to objects and people in her environment. What are her favorite toys and activities? What does she do when someone new enters the room? Talk to her about the things that interest her. In this way the child learns that she has some control over what happens around her.
- Interpret the child's speech into meaningful language. Young children begin to communicate long before they say their first word. However, they need their caregivers to interpret coughs, laughs, babbling, and gestures into meaningful language. When the child makes a gesture related to a favorite nursery song, you might say, "Oh, you want to sing 'Twinkle Twinkle Little Star.'"
- Expand on the child's language. Take a sound, word, action, or phrase and expand on it. Describe the object or the event she is experiencing. Your language can add to the child's understanding of the world around her. For example, if she says, "Blanket," in a requesting tone of voice, respond by saying, "Here's your blanket. It's soft, isn't it?"
- Provide time for exploring and listening. Give the child opportunities to make her own discoveries. Offer a stimulating environment with a variety of appealing toys within easy reach, along with the freedom to play with a toy she wants. Then, fill in the gaps and show the child other ways of manipulating or playing with the toy.

- Describe the world. Everyday experiences can be language-learning opportunities. Tell the child what she is seeing or doing. Talk about the environment and encourage her to smell, taste, and listen to her surroundings. Learning language means more than knowing the names of people, objects, and activities. Talking about what other people are doing may make it easier for a child to develop an interest in her environment.
- Express your feelings and put the child's feelings into words for her. The child who is visually impaired cannot see facial expressions and cannot read feelings from the frowns, smiles, and expressions of others. Describe your feelings with words and use your tone of voice so the child can feel the smiles and expressions she cannot see. Explain the feelings of other people and teach her how to appropriately express her feelings. When she smiles or laughs you might say, "You're smiling, you must be happy," or, when the child is fussing and expressing anger, you can label the feeling by saying, "You sound very angry."
- A child's early attempts to communicate must be encouraged. By imitating and expanding her language, you encourage her to continue talking. If she says, "Kitty," in response to the meow of the family pet, you might respond with, "Yes, the kitty's in the room."
- Acknowledge the ideas and feelings in the child's speech. Careful observation of the child's actions and the events taking place around her will enable you to respond appropriately to her underlying intentions. If she is playing with a ball that rolls out of reach and then asks, "Ball?" in a requesting tone of voice, you could respond by retrieving the ball, giving it to her, and saying, "Here's your ball. It rolled away, didn't it?"
- Provide hands-on experiences. This makes it easier for the child to link the language she is hearing to what she is experiencing. For example, if you are introducing the concept of circles you might bring an empty wading pool into the classroom and have the children scoot around the inside perimeter and experience a circle first hand. Hoola-hoops, circular crackers, and the wheels of toy cars and trucks help the child expand her concept of circles.
- Introduce change in the experiences and language you provide. In addition to talking about the things the child

Look and listen. Observe the child's activities and responses to objects and people in the environment.

BEST COPY AVAILABLE

understands, it is important to introduce new objects and activities on a regular basis and talk about them. For example, if the children are going to visit a farm, talk about it before they go. Tell the children about the kinds of things found on the farm and the kinds of animals that live there and the sounds they make. Talk about how things on the farm smell and feel. Use toy animals, songs ("Old McDonald"), and a toy farm to prepare the children for their visit by letting them know what to expect.

- Encourage appropriate behavior. There are times when you need to let the child know that her language is not appropriate. You may need to model the language best suited for that situation. For example, during snack time you might ask, "Do you want an apple or a banana?" If she responds, "You want an apple?" you can say, "I think you mean, 'I want an apple.'"
- Listen to how you interact with the child. Be careful not to ask too many questions. Sometimes objects need more than labels—describe how they feel and work, and demonstrate directly how they can be used.
- Help children develop an understanding of what is expected of them. They need to respect the rights of others, as well as listen to and respond to the interests and concerns people express to them. Mealtime can provide an excellent opportunity for children to share and exchange their ideas with other family members.
- Provide a variety of experiences. A child's understanding of the world is enriched through interaction with a variety of people, objects, and activities. One teacher of preschool children with visual impairments had the class wash a car. They were delighted to discover that the tires were hard and round (like circles), and that there were four of them. Washing the windows and feeling the windshield wipers elicited many questions and expanded the children's concept of car.
- Be supportive and encouraging; most of all make it fun. Children learn more from what they enjoy. Select an activity that interests the children and make it a language lesson. Games teach children to take turns, like they do during conversations. Games may help them learn how pronouns are used. Introduce a ball game by saying, "First, it's my turn. I'll roll the ball to you and then you can have your turn and roll the ball to me."
- Use nursery routines that incorporate body actions such as rocking and clapping. These routines are an effective means of gaining and maintaining a child's attention. They may then become the basis for social play and provide a way for her to initiate and control interactions.
- Deliver corrections in an indirect manner. Young children often mispronounce words and use them incorrectly. This is a natural part of language learning. When a child says a word or pronounces a sound

incorrectly, include the proper form of the word in the next sentence. In this way we let her hear the correct sounds or words without drawing attention to the error. For example, if the child says, "I want to thing" (sing), your response could be, "Yes, let's sing a song." If the child says, "I goed to the park," you might respond, "I went there too. Tell me what you did there." Indirect correction lets the child know that we understand what she has said, and lets her hear the correct way to express something.

- Use open-ended questions to keep conversations going. Closed questions like "What's that?" or, "Is that your doll?" require only a one- or two-word response. Open-ended questions start like this: "What if...?", "Tell me about...," or "How did that happen?" Open-ended questions do not have right or wrong answers, necessitate problem solving, and require children to use their imaginations.
- Be sure you have the child's attention when you are talking to her. Use touch or her name to gain her attention. Be sure she knows what you are talking about. Words that are not attached to the here-and-now have little meaning for the young child. You may want to turn her head so she is facing you when you talk. This may help keep her attention and teaches her that people face each other during conversations.
- Consider a total communication approach to language development for a child who is not talking or attempting to imitate the language she hears. This approach incorporates words and sign language. You cannot force her to talk, however, you can usually motor her through a simple sign. Consult a speech and language pathologist to establish this type of intervention strategy.

When to consult a speech and language pathologist

A speech and language pathologist should be a member of any preschool or early intervention program whether on a regular or consultant basis. She should be consulted whenever there are concerns regarding the speech or language development of a child (for example, if an infant is not babbling or cooing, or not responding to noises in the environment). If a child is not saying words by one and one-half to two years of age, an evaluation of speech and language development is necessary. (Children do not master all forty sounds of the English language until seven or eight years of age.) If it is difficult to understand what a child is saying and she is experiencing frustration when she is not understood, a referral to a speech and language pathologist should be made.

Help children develop an understanding of what is expected of them. They need to respect the rights of others, as well as listen to and respond to the interests and concerns people express to them.

Bibliography

Chernus-Mansfield, N., Hayashi, D., & Kekelis, L. (1985). *Talk to me II.* Los Angeles: Blind Childrens Center.

Cutsforth, T.D. (1951). *The blind in school and society.* New York: American Foundation for the Blind.

de Villers, P,. & de Villers, J. (1979). *Early language.* Cambridge, Massachusetts: Harvard University Press.

Dunlea, A. (1989). *Vision and the emergence of meaning.* Cambridge, England: Cambridge University Press.

Kekelis, L. (1988). *Language acquisition in the visually impaired young child.* Proceedings of Practice Workshop A. Language Acquisition in the Visually Impaired Young Child: Theory & Practice. Los Angeles: Blind Childrens Center.

Kekelis, L., & Chernus-Mansfield, N. (1984). *Talk to me: A language guide for parents of blind children.* Los Angeles: Blind Childrens Center.

Santin, S., & Simmons, J. N. (1977). *Problems in the construction of reality in congenitally blind children.* Visual Impairment and Blindness. (December, 1977), pp. 425-429.

VIIth International Seminar on Preschool Blind, (1981). Position Paper.

XIVth International Seminar on Preschool Blind, (1990). Position Paper.

Patricia Nagaishi, M.A., O.T.R.

Chapter seven Sensorimotor integration

Children who are visually impaired or blind do not have the benefit of receiving information from one of our most dominant sensory systems, the visual system. They must rely on the information they receive from the other sensory systems. The ability to process and use this information is the focus of this chapter. Some basic sensorimotor integration concepts are covered, as well as an overview of the sensory systems and their functions. These concepts are followed by a discussion of what happens when there is inadequate sensorimotor integration. Special considerations are outlined for the child with a visual impairment or the child with multiple handicaps and a visual impairment. Finally, suggestions are made for incorporating these sensorimotor integration concepts into lesson planning and classroom activities.

What is sensorimotor integration?

Sensory integration as a clinical theory and treatment approach in occupational therapy was developed by Dr. A. Jean Ayres (1972; 1979). The concepts and principles described in this chapter are based on her work as well as that of researchers who have expanded her theory. However, the word *sensorimotor* (also sensory-motor) is used in several ways in different disciplines. For example, sensorimotor is used to describe Piaget's early period of cognitive development from 0–2 years during which the child begins to learn about his body and objects through early exploration and manipulation. It also refers to certain types of activities included in the educational curriculum which typically include gross motor, fine motor or perceptual-motor components, and usually involves skill development.

BEST COPY AVAILABLE

For our purposes, ***sensorimotor integration*** refers to the ability to take in sensory information from the body and from the environment so we can interact with the environment in a purposeful way. Adequate sensorimotor integration underlies the successful performance of higher level processes such as paying attention to a lesson, reading a story, or drawing a picture.

These higher level processes and functions are the very things educators deal with on a daily basis. Adding concepts and principles of sensorimotor integration to your knowledge of child development, learning theory, behavior management, and teaching strategies can enhance your ability to educate children with special needs. By including a sensory processing perspective in the way you look at behavior and the environment, you can plan goals and structure activities so that children have the opportunity to process sensory information under the best conditions.

How does sensorimotor integration happen?

As children grow and develop, sensorimotor integration occurs as they take in information through the senses during their normal, everyday activities. For example, a child running after a ball in the backyard makes use of all the information he gets from his senses: the warmth of the sun, the smell and feel of the grass under his feet, the rush of the air as he runs toward the ball, the color and size of the ball, the distance he needs to run to get to the ball, and the movements of his arms and legs as he runs. He does not think about all these bits of information. The sensory information is integrated unconsciously and automatically so he can make the adaptive response of running after the ball.

The process of sensorimotor integration

We are bombarded with sensory information all the time. The brain takes in this information and sorts, filters, processes, and organizes it so that we use only what we need to function in the world. In this process, the brain makes sense of the information and attaches meaning based upon our memories, associations, experiences, perceptions, emotions, and thoughts. When we use this information to make an adaptive response such as reaching for a desired object, the brain receives more sensory information as feedback so we know if the response was appropriate. For example, when a sudden noise is registered by our ears it is translated into impulses that are transmitted to the brain via nerve pathways. The nervous system has several ways to filter, select, strengthen or weaken these impulses. The impulses arrive at their appropriate destination in the brain where they are processed, organized, and integrated into meaningful information about the nature of the sound and its location. The brain sends a signal back via different nerve pathways for the appropriate response, such as turning your head toward the sound. The brain then receives more sensory information as feedback so that validation, adjustments, or corrections can be made.

There is a lot going on which we take for granted. It is amazing that we are able to function given that thousands of sensory stimuli are constantly being filtered, processed, and organized by the brain. It is also easy to see that a disturbance in this process can have a great impact on our ability to function. However, before we talk about what can go wrong, we need to become familiar with the sensory systems and their functions.

The sensory systems

When we think of the senses, we usually think of five: sight, hearing (auditory), smell (olfactory), taste (gustatory), and touch (tactile). These senses have receptors that take in sensory information from the world outside our bodies. However, we also have other sensory systems with receptors which receive information from within our bodies: the somatosensory and the vestibular systems.

The somatosensory system

This system has three components: proprioception, kinesthesia, and tactile. The proprioceptive and kinesthetic systems tell the brain about the position of body parts and what they are doing. The receptors are located in the muscles and joints. Proprioception refers to unconscious awareness of joint position while kinesthesia refers to conscious awareness of joint position and movement. For example, we use our proprioception to tell us whether we are sitting or standing; we do not have to think about it to maintain our posture. We use our kinesthetic sense to move our hands the right amount of space from one button to the next without looking when getting dressed, or to locate the correct knob to change the station on the car radio while driving.

The tactile system (our familiar sense of touch) has receptors in the skin which give the brain information about the environment. Proprioception and kinesthesia provide sensory information from within the body, while the tactile system receives information from outside the body. The tactile system has a protective function which is based on the need for survival and alerts us to danger (for example, when the receptors tell us about temperature and pain). It also has a discriminatory function that provides information about the qualities and properties of objects in the environment. Our fingertips tell us if things are sharp or dull, hard or soft, and what form or shape they have. This is what we use to reach into our pocket to find the door key among the coins and other objects without our having to look.

The tactile system (our familiar sense of touch) has receptors in the skin which give the brain information about the environment.

The somatosensory system plays a crucial role in our ability to interact with the environment and use our bodies effectively. It contributes to the development of body scheme or image, visual perception, awareness of spatial relationships, the development of praxis (the ability to put together new sequences of movement), the use of tools, and our emotional well-being.

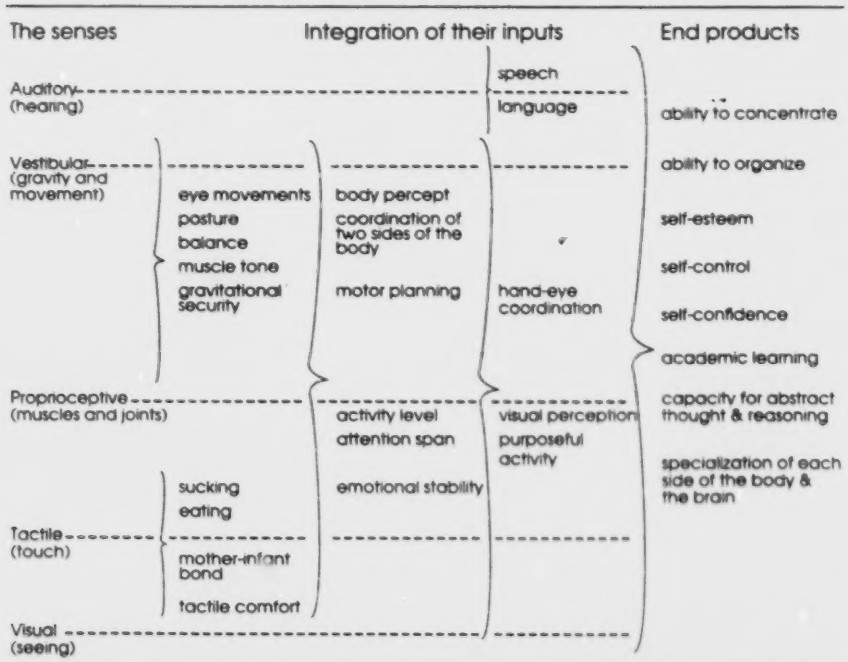
The vestibular system

This system has receptors located in the inner ear which send information to the brain about the position of our head in relation to gravity. It tells us whether we or our surroundings are moving, and the nature of that movement: up, down, angular, fast, or slow.

The vestibular system contributes to several important functions such as the ability to maintain our posture against gravity, and the maintenance of an adequate amount of tension in muscles for posture and movement. This system aids the level of arousal, aids the control of head and eye movements, and aids in the use of both sides of the body (bilateral integration). The vestibular system is also thought to play a role in language and emotional development.

We can see that the somatosensory and vestibular systems have some very important functions. However, it must be emphasized that sensorimotor integration is a complex process that involves all the sensory systems. They do not work in isolation from each other. In the figure below we see

The senses, integration of their inputs, and their end products (from Sensory integration and the child.)



Reprinted by permission of the publisher.

BEST COPY AVAILABLE

that adequate processing of vestibular (movement) and proprioceptive (joint position) input contributes to posture, balance, and muscle tone. These senses, along with tactile and visual input, contribute to the development of bilateral integration and an adequate attention span. We use all this information for purposeful activity and learning. The sensory systems work together to allow us to do the many complex tasks in our lives.

What can go wrong?

Sensorimotor integration occurs when sensory information is received, processed, and organized to allow us to make an adaptive response. If the sensory information is not processed and organized adequately, the result can be an abnormal or inappropriate response. When such a response occurs, the feedback is inaccurate. The effects of this disorganization may be seen in delayed development, postural and movement difficulties, behavioral and learning problems, and poor adjustment to the demands of the school environment.

A summary of the difficulties which may be observed when sensory information is not processed adequately is provided in the following table. Please note that these behaviors refer to children with no known disability or handicap. Children who experience difficulties such as these may be said to have sensory integrative dysfunction. This may be due to inadequate processing of one or more sensory systems, and there is a range in the degree of impact on the child's ability to function. For example, a child

Behaviors and difficulties that may be seen with inadequate sensory processing (from The relationship of learning problems and classroom performance to sensory integration.)

Proprioceptive System	Tactile System		Vestibular System	
	Hyposensitive	Hypersensitive	Hypoactive	Hyperactive
The Child May—				
Have stiff and uncoordinated movements Fall frequently or appear clumsy Have difficulty negotiating space, e.g., may crash into objects in the environment Have difficulty ascending and descending stairs Slap feet for additional feedback when walking Have difficulty seating himself in a chair Have difficulty dressing and undressing May not be able to do things without looking May grasp pencil too hard	Have reduced sensitivity to touch Get hurt and not realize it Know he was touched but not exactly where Not realize he dropped an object he was carrying Not be able to discriminate objects by touch Have poor body awareness	Have tactile defensiveness—overly sensitive to touch Display negative reaction to the normal contacts with people and objects (e.g., accidental bumps, standing in line, won't touch certain toys, etc.) Dislike messy activities such as fingerpainting Have decreased tolerance for sitting in a chair Dislike certain fabrics or articles of clothing Dislike certain foods because of texture Dislike having hair brushed or washed; dislike taking a bath	Crave movement such as swinging, rocking, etc. Not be able to sit still; finds reasons to get up and move Need movement to maintain an optimal level to function Not get dizzy until an enormous amount of movement is experienced	Not tolerate movement Not like being above ground with feet off the floor Dislike playground activities Not like head inverted as in somersaults

Adapted by permission of the author.

BEST COPY AVAILABLE

with a mild degree of tactile defensiveness, mildly low muscle tone, and difficulty in processing vestibular information may show some lack of coordination in his movements during activities on the playground. Another child, with poor processing of tactile, proprioceptive, and vestibular information may have trouble using a pencil or putting on clothes, be afraid to get on playground equipment, and have trouble knowing where he is in space.

From the table on the previous page, it can be seen that the difficulties can be subtle or easily attributed to motor or behavior problems. This is why it is important to use an interdisciplinary team approach by including an occupational therapist with expertise in sensorimotor integration to assess the child and rule out the presence of sensory integrative dysfunction. Your educational assessment will provide invaluable information, and together with the team's other assessments the primary needs of the child can be identified and an appropriate educational program can be planned. However, if the child has a known disability or diagnosed central nervous system (CNS) problem, other considerations must be included. In the next section we will discuss how visual impairment affects sensory processing.

The impact of disability

Although children with sensory integrative dysfunction primarily have problems with processing and organizing sensory information, the input they receive is essentially "normal." Children born with a disability do not necessarily develop sensory integrative problems, but their ability to process and organize information may be different because the nature of the sensory information they receive and their experiences with their environment are different. For example, a toddler who has increased muscle tone due to cerebral palsy (a nonprogressive motor disability caused by brain damage) and difficulty moving his arms and legs is receiving different proprioceptive and kinesthetic information from his muscles and joints than a "normal" toddler. The sensory input itself is different or abnormal, and the processing of this information may result in a unique interpretation. One of the aims of occupational or physical therapy, then, is to use techniques to allow the child to experience normal movement as much as possible so that more normal sensory integrative experiences can occur.

Considerations for the child with visual impairment

The visual system is a major source of information and feedback about the world. Our vision is the dominant sense, and it is a powerful, fast, and efficient processor and integrator of sensory information. We use this information for movement and mobility, knowing our orientation and position in space, and to guide our hands when performing self-help and classroom activities—indeed, for all that we do. We take for granted how much we rely on our vision.

Children born with a visual impairment or blindness, or who experience a vision loss very early in life (before two years of age) must learn about their world without the benefit of this sensory system. They need to learn to use the information they receive from the other senses, but it cannot be assumed that the sounds they hear, the movement they experience, and the textures they feel are processed in the same way as by a sighted child. The child with a visual impairment does not automatically know how to interpret and make sense of this information. At the same time, this does not mean that the child with a visual impairment should not be given the same opportunity to experience and participate in all the activities as any other child. While the development of sensorimotor integration in a child with a visual impairment may be different, the child's gross motor, fine motor, and cognitive development is not necessarily impaired. However, there are some important considerations which should be kept in mind.

For the young infant, vision is a source of motivation to explore and experience the environment. Without vision, the infant does not see how his arms and legs move. He does not see other people moving. He does not see the enticing shapes and colors of the things around him and it may take longer for him to develop postural control in antigravity positions (for example, sitting, or staying up on hands and knees) so he is not likely to reach for a rattle or crawl toward that busy box or use his hands to manipulate a squeak toy. Not only is there a lack of visual input, but also a decrease in information from the somatosensory and vestibular systems. From earlier discussions we learned that these systems contribute to an awareness of the body and its position in space, muscle tone for posture, awareness of movement, and bilateral integration.

Therefore, the child with a visual impairment may have low muscle tone. The infant may feel floppy when carried or may have very flexible arms and legs. Low muscle tone contributes to a tendency to maintain wide-based postures for stability. The child may keep his legs spread wide apart when sitting or standing. He may have a tendency to move or change position by keeping his body straight instead of turning it, such as when moving from a sitting position to hands and knees. The ability to use trunk rotation during movement gives us more freedom and helps us move in a smooth and coordinated fashion.

For the child who is visually impaired not only is there a lack of visual input, but also a decrease in information from the somatosensory and vestibular systems.

The child with a visual impairment may also have a fear of movement, especially in open space or above the ground. For example, he may be afraid to walk across a room without holding someone's hand or he may not like to get up on a merry-go-round. Alternatively, some children may crave certain movements such as rocking, swinging, or spinning, and want to spend a lot of time doing these activities. Because of this, the child may take longer to master certain gross motor and fine motor skills, and may not show the variety of movement that children usually display. He may primarily sit, stand, stoop and walk, but he does not squat, kneel, or creep on hands and knees during play activities.

Other children may show tactile defensiveness (sensitivity to certain textures), or oral-facial defensiveness (a dislike of having their face washed or rejection of certain foods because of texture). Still other children may exhibit self-stimulatory behaviors which are repetitive movements such as rocking or hand-flapping.

If you refer back to the table you will see that the child with a visual impairment may show some of the same behaviors or difficulties as those seen in children with sensory integrative problems. However, it must be emphasized that children with visual impairment or other disabilities do not necessarily develop sensory integrative problems. For example, the "tactile defensiveness" seen in a child with a visual impairment may be due primarily to unfamiliarity with the object or texture or a genuine dislike of it. Once he becomes familiar with the object or texture, the child will interact with it. He may also enjoy taking a bath, being hugged, or will tolerate most fabrics. Thus, tactile defensiveness can be exhibited selectively rather than on a more generalized basis. On the other hand, true tactile defensiveness may be present if a child with a visual impairment does not like being hugged, having his hair shampooed or brushed, won't touch stuffed animals, refuses to put his hands in a container of beans, won't engage in gluing and fingerpainting activities, or responds negatively to the innocuous touches that occur everyday.

On initial observation, the child with a visual impairment who has difficulty sequencing his movements in order to locate and sit down in his chair in the classroom may appear to have a problem with praxis (putting together sequences of movements). In reality, he might simply need to learn to use the appropriate cues that work for him. In contrast, the child with a visual impairment who consistently has trouble sequencing his movements to sit down in his chair, has trouble getting on and off a tricycle, cannot figure out how to climb into or get out of a large box during a play activity, even when given appropriate cues, may indeed have

problems with praxis. This is why it is important to use the expertise of an interdisciplinary team so that an accurate assessment of the child's functional status can be made. It can then be determined whether any observed difficulties are beyond what can be attributed to the visual impairment.

The child with multiple handicaps and visual impairment

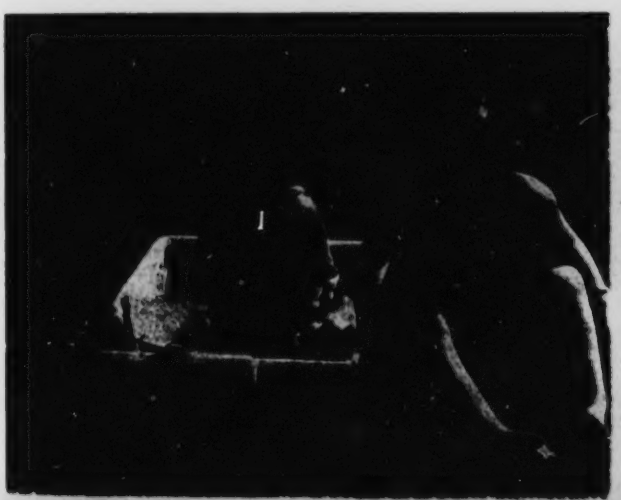
It is likely that many of the children you work with will have other conditions or disabilities as well as a visual impairment that affect their ability to function. The child with multiple disabilities presents a unique challenge because it is usually not possible to separate out the impact each condition has on the child's development. Likewise, it is often not possible to know how much of the child's difficulties can be attributed to the visual impairment. A child with cerebral palsy (CP), seizure disorder, and blindness, who has difficulty maintaining certain postures, using his hands, and moving from one point to another because of increased muscle tone (stiffness or tightness), limited cognitive skills, and poorly controlled seizures needs a program that will address his multiple needs rather than one that focuses on enhancing visual function. On the other hand, a child with mild left hemiplegia CP (when the left side of the body is affected), a visual impairment, minimal postural and motor difficulties, age-level cognitive skills, and no medical problems would benefit most from a program addressing his functional vision needs.

Regardless of the disabilities' causes, or how many diagnoses there are, an accurate assessment of the child's functional status in all areas is necessary in order to plan an educational program to meet the child's needs. The expertise of an interdisciplinary team can be extremely beneficial in this process. In addition, children with multiple handicaps may require special adaptive equipment to facilitate their performance of self-help and classroom tasks.

Self-stimulatory behavior

Children with visual impairments sometimes exhibit self-stimulatory behavior in the form of repetitive movements such as flapping their hands, rocking, spinning, eye-poking, grinding their teeth, and repetitive vocalizations. The term self-stimulatory behavior is preferred to the once popular term *blindism*

BEST COPY AVAILABLE



It may be an indication of boredom when a solitary child rocks back and forth while flapping her arms, but stops when she is engaged in activity or encouraged to interact with another child.

because, with the exception of eye-poking, these behaviors are not unique to children who are blind. Children with mental retardation or autism, for instance, may also exhibit self-stimulatory behavior.

When dealing with a child with a visual impairment, it is important to look at the context in which such behavior occurs. For example, a child who enters a room, stands in open space, then claps his hands while turning himself around in a circle may actually be using reflected sound (echolocation) to familiarize himself with the environment and his behavior serves a functional purpose. A child who grasps a toy with both hands and immediately brings it to his nose to smell it before manipulating it is not exhibiting "odd" behavior, but is using his sense of smell as well as his tactile sense to learn about the properties of objects. On the other hand, it may be an indication of boredom when a solitary child rocks back and forth while flapping his arms, but stops when he is engaged in activity or encouraged to interact with another child. This child's behavior can be redirected and it may be possible to develop a program that provides him with appropriate alternatives for coping with periods of inactivity.

Self-stimulatory behavior observed in children with visual impairment sometimes serves a function, or may occur when the child is bored, under stress, or seeking attention. It is important to look at the circumstances that precede the behavior, the frequency of occurrence, the duration, the intensity, whether there is potential for harm as with head-banging or eye-poking, and to what extent it interferes with the child's ability to function and learn.

From a sensory processing perspective, self-stimulatory behavior can also be an indication that the child needs certain sensory input. A child who rocks, spins in circles, or engages in hand-flapping may need more vestibular input. It might be helpful to engage him in more purposeful and socially acceptable activities such as riding the playground swing or merry-go-round, playing a parachute game, or rolling in a barrel or inner tube. The child who bangs his head on the floor or wall, hits himself in the head with his hand, or grinds his teeth may not process proprioceptive and tactile input adequately, and may need to engage in activities such as obstacle courses, pushing a heavy cart, kneading play dough, or making a "human sandwich" (when children lie down between two large mats or pillows).

The child who displays negative self-stimulatory behavior may not process proprioceptive and tactile input adequately, and may need to engage in activities such as kneading play dough.

It can be useful to look at these behaviors from a sensorimotor as well as a behavioral perspective. However, it is important not to let the child substitute the activity for the self-stimulatory behavior. For example, it is not appropriate to simply put a child on a rocking horse whenever he starts rocking and then leave him there. The activity must be purposeful, meaningful, and have appropriate boundaries (beginning, middle, and end). It should occur as part of the daily routine, or in the context of a specific program or activity. Instead of putting a child in a swing for the sake of swinging, the vestibular input he needs could be incorporated into a classroom activity that has two children each taking turns on a swing, or playing a game of stop-and-go or fast-and-slow with a time limit and some structure.

A traditional behavioral intervention program may be appropriate when self-stimulatory behavior occurs with such frequency and intensity that it interferes with the child's ability to learn, to interact with others, to perform classroom or self-help activities, or if there is potential for harm. In some cases, a combination of behavioral intervention and sensorimotor or other approaches may be beneficial. Persistent self-stimulatory behavior is often difficult to eliminate, and intervention requires the consistent, collaborative effort on the part of all those involved with the child such as the parents, teacher, aid, and therapists. An interdisciplinary team can contribute greatly to this process.

What can you do?

Now that we have examined some of the concepts of sensorimotor integration and the functions of the sensory systems, how can you use this information in your classroom? A list of suggested ways you can incorporate sensorimotor integration into your classroom routines appears below. Some of these suggestions may seem obvious, and some may not be possible for you to do in your setting, but, hopefully, they will help you look at behavior and the environment with additional insight.

Environmental considerations

- Make sure that you have appropriate tables and chairs for the children in your classroom by considering chair height, seat depth, and table height for the chairs. Children with multiple handicaps may need special adaptations or special chairs. Check with an occupational therapist or a physical therapist for recommendations. It is important that children sit with their feet flat on a stable surface so footrests (or adaptations) may be necessary.
- Conduct activities with the children in a variety of positions, including "non-traditional" positions. There's no law that says children must learn or do things while seated in a chair at a table. Let children do some activities on their stomach on the floor, kneeling at a low table,

straddling a bolster, or standing. Not all the children need to do the activity in the same position. You can individualize the activity by having children work in positions most appropriate for their balance and posture, based on the requirements of the activity.

- Set up the physical space after consulting with a TVI and an O&M specialist to allow mobility, comfortable traffic patterns, and easy access to materials and adaptive equipment. Ideally, you want the classroom environment to facilitate independent mobility and be functional for both you and the children.
- Check for distractions and extraneous sounds which can be overstimulating to some children such as the hum of the air conditioner, outside traffic, general noise level, air temperature, and lighting.
- Position the classroom materials so the children have the best chance to complete the task. This is particularly important for children who have some functional vision and for children with multiple handicaps. Materials may need to be set up at a certain height, distance, angle, or reference point (to the left, in midline) in order to make the best use of the child's vision, maximize postural control, and minimize abnormal muscle tone.
- Remember that you are also a source of sensory stimuli and may need to adjust your behavior according to the child's needs: Is your voice soft or strong, low-pitched or high-pitched? Do you use a lot of physical prompting with light touch or firm contact? Do you speak in short sentences or long sentences—slowly or rapidly? You may need to make adjustments if you have children who are hypersensitive to certain sounds, defensive to tactile input, or have difficulty processing sound.

You may want to try a gross motor activity before...

Lesson planning —individual educational plan

In addition to the educational goals or skills you want the child to achieve, you should also think in terms of sensorimotor issues.

- Is the child ready for the task (not just developmentally or cognitively), but from a sensorimotor standpoint?
- Consider how you schedule and sequence your activities. For example, for certain children you may want to try a gross motor activity (with vestibular and proprioceptive input) before an activity that requires concentration and alertness (e.g., a fine motor activity). However, you would not do this if it tends to overstimulate the child. You may want to provide specific tactile stimulation to the child's hands and arms before a fine motor activity. After the children come in from the playground, you may want to settle them down for the next activity with slow, rhythmic input, soothing music, or a deep massage. Your occupational therapist can assist you with this planning.
- Assess the sensorimotor needs of the child and the primary purpose of the activity and make modifications accordingly. For example, during circle time, if the primary aim is language stimulation, you should eliminate extraneous noise and make sure the children are seated optimally. If you want to work on sitting balance, have the children sing simple songs without adding other postural demands such as complex hand movements. If the primary aim is for the children to learn the sequence of hand movements for a song, make sure they are positioned with adequate trunk stability and have access to appropriate cues.
- Design activities that make as many postural, sensorimotor, and educational demands as you think can be handled. For example, if the children are at a level where they can sit on stools, play musical instruments while singing a song, and take turns at doing a solo. This is much more demanding than having children sitting on the floor and clapping their hands to the music.

...an activity that requires concentration and alertness.

- Analyze and identify the primary and underlying sensorimotor components of the activities. In the above circle time example, the sensorimotor components include sitting balance, bilateral motor coordination, and auditory processing. Your educational components may include social/peer interaction, language development, and attending to/sitting through an activity for a specified period of time. You may want to code your lesson plans and IEPs to help remind you of the sensorimotor components: T for tactile, V for vestibular, P for proprioceptive, A for auditory, etc. Use whatever system works for you. Include in your methods section any information such as position of materials, what position the child should be in, and whether tactile stimulation should be provided before an activity.

Activities must be meaningful and safe

In normal development, sensorimotor integration occurs as the child engages in everyday play and functional activities. For the child with a visual impairment, it is just as important to provide opportunities to experience a variety of activities that includes movements, manipulations, textures, surfaces, heights, sizes of objects, etc., in the context of everyday experiences.

Avoid providing sensory input in isolation. It is best to incorporate such input directly into a functional activity. (Therapeutic use of sensory stimulation should be done by experienced occupational or physical therapists.) For example, do not use a hair dryer on a child's arm so he can "experience" tactile stimulation. Instead, use the hair dryer after a water activity to dry the child's hair, and describe the properties of this experience such as the warm air, the noise it makes, and how it feels on wet hair.

Be aware of the child's tolerance level. For example, vestibular input can be very powerful for certain children—especially spinning—and you need to watch for signs such as dizziness, clammy skin, and behavioral changes. The response may also be delayed. If an activity occurred in the morning, you may not see these signs until the afternoon.

Children with multiple handicaps may warrant special attention.

Children with multiple handicaps may warrant special attention. Some of these conditions can include seizures, a lack of sensation in the legs (perhaps due to a spinal cord defect such as in myelomeningocele), and fragile bones. Check with the child's physician as well as the school nurse, occupational therapist, and other specialists for recommendations.

It is not possible to provide specific "recipes" because children have a wide range of individual differences. The circumstances of the activities, the nature of the children's disabilities, and the children's interactions with peers and adults, as well as the environmental components, all vary. Each child must be assessed with the above in mind in order to plan the most appropriate program.

Bibliography

Ayres, A. J. (1972). *Sensory integration and learning disorders.* Los Angeles: Western Psychological Services.

(1979). *Sensory integration and the child.* Los Angeles: Western Psychological Services.

Quirk, N. J., & DiMatties, M. R. (1990). *The relationship of learning problems and classroom performance to sensory integration.* New Jersey: Authors.

For more information on sensory integration

To order books, pamphlets, and videotapes, contact:
Sensory Integration International
1402 Cravens Avenue, Torrance, CA. 90501-2701
(310) 533-8338.

Suggestions for activities

Bissell, J., Fisher, J., Owens, C., & Polcyn, P. (1988). *Sensory motor handbook: a guide for implementing and modifying activities in the classroom.* Torrance, CA: Sensory Integration International.

Fink, B. (1989). *Sensory-motor integration activities.* Arizona: Therapy Skill Builders.

Young, S. B. (1988). *Movement is fun. A preschool movement program.* Torrance, CA: Sensory Integration International.

More about the brain

Scientific American (1992, September). *Mind and brain.*

Sylvester, R. (1990). *An educator's guide to books on the brain.* Educational Leadership, pp. 79-80.

Patricia Nagaishi, M.A., O.T.R.

Chapter eight Motor development

Most people who work with infants and young children are familiar with the motor milestones that mark development in the early years. There are many developmental charts, checklists, and books that describe and identify the age ranges in which most children achieve these milestones. (See Caplan, 1973; Caplan & Caplan, 1977; Brazelton, 1969; Kleckner, 1981.)

This chapter will focus on some important concepts in normal motor development as well as the impact visual impairment may have on motor development. However, the age progression of specific motor milestones will not be discussed. It is not as important to look at the age at which a child achieves certain milestones as it is to assess how the child's development is proceeding and the quality of that development. This is particularly true for the child with a visual impairment because her motor experiences are different from those of a sighted child. At present, there are no established developmental norms for children with visual impairments, and comparison to those for sighted children may not be appropriate (Ferrell, 1986).

Therefore, this chapter will describe some of the key elements of normal gross motor and fine motor development in the first year of life. Then, some of the differences that may be seen in children with visual impairments will be presented. Finally, some suggestions for enhancing motor development in the child with a visual impairment will be provided.

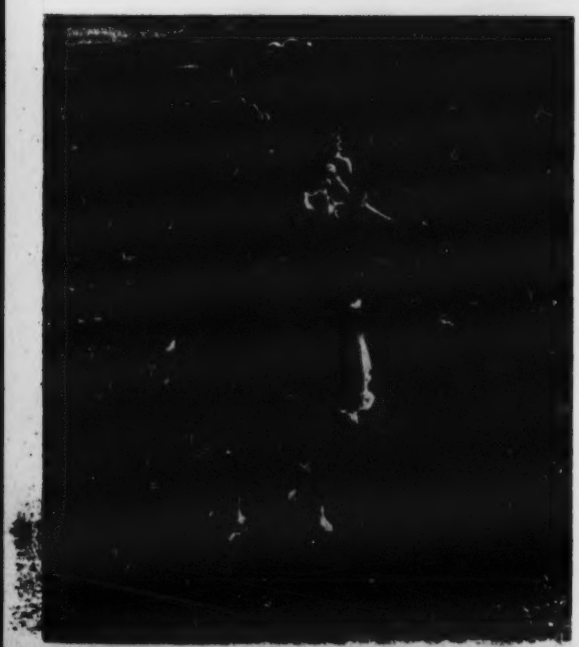
BEST COPY AVAILABLE

It is beyond the scope of this chapter to discuss the different theories of development. However, some important concepts need to be presented. Before looking at motor development in children with visual impairments, one needs to have an understanding of what is normal or typical in sighted children.

Development proceeds along a continuum. Although we may talk about separate stages of development with specific age achievements (rolling at four months, sitting alone at nine months, creeping at ten months), in reality, development does not occur in a straight line. Some children skip a milestone (e.g., creeping on hands and knees) and some children may plateau or take a step backward in one area (e.g., saying words) while they progress in another area (e.g., walking).

Development occurs for the whole child, simultaneously within and across areas. That is, even though we talk about separate areas of development (cognitive, fine motor, gross motor, language, social/emotional), the child is growing, maturing and developing in all areas at the same time. There is overlap, interaction, and mutual influence between the different areas of development.

At any given stage or for any given milestone there is a wide range of "normal" development that includes considerable difference from individual to individual. We know that development is sequential and, to some extent, predictable, but each child is unique and experiences the world in her own way, based upon her genetic potential, her upbringing, and cultural background. A child may start walking anywhere between nine and 15 months of age, or a child's first words may occur at any time between nine months and two years! This is why it is more important to know the sequence of normal development than it is to memorize the age levels at which milestones are expected to occur.



In addition to these concepts, there are some important aspects specific to motor development that will be reviewed briefly. One concept is that motor development proceeds along several gradients or dimensions. A child first develops control of her head, then her body (or trunk), and finally her legs. This is cephalocaudal (head-to-tail) progression. A child typically develops control at the shoulders (near the middle of the body or proximally), before developing precise use of the fingers

Gross motor function is typically described as actions or movements that require the use of the large muscles of the body, as in rolling or running.

(away from the body or distally). Finally, the quality of a child's movements changes from early gross patterns of movement in large ranges (such as random kicking) to more fine, precise actions in small ranges (such as foot placement during walking). Another important concept to note is that a child has to achieve and maintain stability in certain parts of her body in order to move other parts with control. For example, once an infant is able to sit without using her hands for support, she can use them to reach for and play with toys.

The process of normal development is not just a sequential attainment of skills. It is important to remember these concepts when working with children with disabilities or special needs in order to plan appropriate interventions and avoid "recipe" programs. Sometimes before we can focus on learning a skill such as kicking a ball, we must make sure the child is prepared (has adequate trunk stability and balance). In addition, although an impairment may be present, many children follow a sequence of motor development similar to that of children without disabilities. However, it may take longer to achieve certain skills or there may be qualitative differences in the movement or postural patterns used.

Indeed, much of the literature on early childhood blindness suggests that the rate and sequence of motor development in infants with visual impairments does not differ greatly from that of sighted infants, especially in the early months (Ferrell, 1986; Scholl, 1986; Warren, 1984). In addition, delays seen in motor development may not necessarily be the result of the visual impairment alone. Several factors which may have an indirect influence on later motor development include: the characteristics of the visual impairment (age of onset, the degree of vision present); the lack of visual stimulation; the lack of imitative learning; and environmental factors such as parental overprotection (Scholl, 1986). Just as there is a broad range in the normal development of sighted children, there can be considerable variation in the development of children with visual impairments.

In the next sections we will look more closely at gross motor and fine motor development as well as how visual impairment affects development in these areas. We will look at motor development in the first year of life as a dynamic process that occurs along a continuum in which there are four phases, described by Goudy and Winger (1988) as: infantile, preparation, modification, and refinement. It is important to focus on the first year because a great deal of change occurs during this period and the foundation is laid for the development of higher level skills and function.

Gross and fine motor function

Gross motor function is typically described as actions or movements that require the use of the large muscles of the body, as in rolling or running, whereas fine motor function usually refers to actions or movements that require the use of small muscles of the body, as in a pincer grasp. However, there is more to it than this. Yawning is a gross motor action and so is an overhand throw; yet, these movements also involve smaller muscles of the body. Conversely, a skier makes finely tuned movements of her body and legs to shift her weight as she descends a hill. Thus, the terms gross and fine more accurately refer to the range of movement used in a particular action rather than the size of the muscles involved.

The components of gross motor function include posture, mobility, and skill. Posture refers to the different body positions we assume and maintain against gravity, such as sitting or standing. Mobility refers to three aspects of movement: the range of movement available at each joint in the body (e.g., how far one can bend or straighten the elbow); transitional movements from one position to another (e.g., from sitting to standing); movement through space from point A to point B by rolling, crawling, creeping, and walking (also referred to as locomotion). Skill is the ability to put together a sequence of movements in play and athletics or in functional tasks that become second nature to us with practice and experience such as climbing, jumping, writing, and playing the piano. We can perform certain tasks at a basic level or we may be highly adept at others. All of the above require varying degrees of muscle tone, strength, balance, and coordination.

Fine motor function depends on the presence of adequate postural control: we need to have stability in the head, shoulders, and trunk in order to use our arms and hands effectively. Thus, fine motor development is closely tied to gross motor development. In the following descriptions, references to reaching and playing with toys will be made in the context of gross motor development. More specific aspects of fine motor development will be addressed in a later section.

The first six months

The descriptions of normal motor development will be represented by a child we will call Kellie, while some of the differences seen in the development of a child with a visual impairment will be represented by a child we will call Mary.

Infantile phase (0 through 3 months)

The primary components seen during this phase are beginning head control and gradual straightening or extension of the body. Kellie, as a newborn infant, initially keeps her arms and legs very close to her body and has little active control of her movements. When lying on her stomach, most of her weight is forward and near her head because her arms and legs

are flexed and close to her body and her bottom is raised. There is a gradual straightening of the body as the arms start moving forward, her bottom comes down and her legs begin to extend. This allows Kellie to begin to raise her head up against gravity so that she can spend time attending to people and objects.

When Kellie is raised to a sitting position, she has little active head and trunk control and her head lags behind her body. When supported in a sitting position, her back is very rounded and her head may fall forward and turn to the side. When held in a standing position, she will take weight on her legs and may even show stepping movements, but these are not actively controlled.

In the early months, the infant with a visual impairment may show postures and movements similar to those described above. The early reflexive movements help Mary to begin to develop an awareness of her body and its movement. However, her beginning attempts at head control may be delayed. If the visual impairment is not yet diagnosed, a parent may notice something different about the appearance of Mary's eyes, or that she does not seem to look at things when she is awake.

However, if there are other conditions or medical problems present as well as a visual impairment, we may see more obvious difficulties. For example, Mary may show stiffness in the arms and legs or they may feel overly loose or limp. Instead of a gradual straightening of the body, there may be too much straightening. She may not try to lift her head at all or may arch her back excessively. Some of these difficulties can be seen in infants who were born prematurely, in infants with certain genetic disorders, or in infants who have damage to the brain or central nervous system.

Preparation phase (4 through 6 months)

During this period Kellie continues to improve her head and neck control and she is straightening and extending her body. She shows more active participation as she tries to keep her head and body aligned when she is held in a sitting position; her back is more erect and she has better control of her head.

When lying on her stomach, Kellie takes more weight on her forearms, keeps her head up so that she is free to turn it to look around, and starts to shift her weight from one arm to the other. She may even begin to scoot a little. As she gets stronger and develops more postural control she can push up onto extended arms and support her weight, and begins to shift her

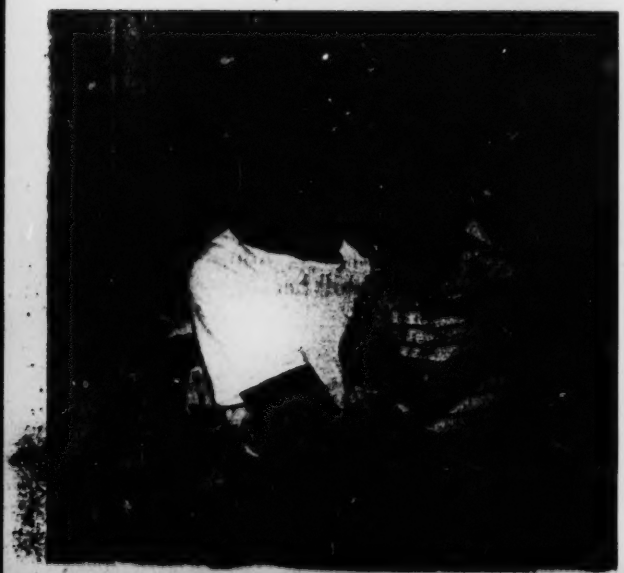
weight. This practice with weight-shifting to one arm allows her to use the other arm to reach for toys and interact with the world. She can also turn to lie on one side so she can use both hands in play.

While resting on her back she shows that she can raise her arms and keep them up so she can reach for, grasp, and play with toys. This means that her shoulders are more stable. She can also lift her legs and begin to play with her feet, even bringing them to her mouth. She shows a lot more mobility in this position: lifting her head, bending and straightening her legs, lifting her bottom, or turning to the side for rolling. When she shifts her weight to the side for rolling, she shows more mobility between the upper and lower body. Her improved head control allows for more rotation in her body, and she can also start to roll by turning her hips. In addition, she can take weight over her legs with more active control when supported in a standing position.

All of this gives Kellie more control of her abdominal and back muscles, as well as her arm and leg muscles. What she does in one position (e.g., on her back) helps prepare her for other positions (e.g., sitting, standing).

Unlike the infant described above, Mary is not as likely to be motivated to interact with the world. She is not visually stimulated to lift her head when she is on her stomach or when supported while sitting. If she does lift her head, there is little motivation to keep it up. We often see an infant with a visual impairment holding her head down. It is not that she lacks the postural control; she lacks the visual information that keeps her in an upright orientation.

In addition, Mary cannot watch people and objects moving in the environment, nor does she get visual feedback for her own movements. Thus, she may not make attempts to reach for objects or move toward an interesting part of the room. She is not as likely to experiment and play with movement as the infant described above. If her movement experiences are limited, the vestibular and somatosensory information that contribute to posture, movement, and body and spatial awareness will also be limited (refer to the previous chapter on sensorimotor integration).



Because of all this, it may take longer for Mary to develop postural control in sitting, and, if low muscle tone is present, she may not practice shifting her weight while on her stomach because she has to concentrate on stability. She may not even like being on her stomach, and may not move very much and thus be described as quiet or not very active.

We often see an infant with a visual impairment holding his head down. It is not that he lacks the postural control; he lacks the visual information that keeps him in an upright orientation.

All of this contributes to how she will perceive the world, how she will perceive her body in relation to space and objects, and how she will perceive movement. This is why it is extremely important to provide the child with a visual impairment with a variety of movement experiences. The visual impairment in and of itself may not be the cause of any motor delays. Rather, the nature of the movement experiences the child has may be more important (Scholl, 1986; Ferrell, 1986; Warren, 1984). In addition, the presence of other handicapping conditions may have a significant, if not primary, impact on motor development.

The next six months

The next two phases of normal development will be described in succession, followed by some of the differences that may be seen in the child with a visual impairment.

Modification phase (7 through 9 months)

Kellie is now developing more postural control and supports herself with her arms while in a sitting position. As extension moves further down the spine she will be able to maintain a more erect sitting position. When she gains sufficient control in her trunk, she no longer needs her arms for support. Now she is free to use them to reach for and grasp toys and can even keep her balance when she turns her body to the side to reach. She also develops more control in the hands-and-knees position. She experiments with shifting her weight forward and back, and from one side to the other. When she has enough stability in her shoulders, trunk, and hips she is able to separate the movements of her arms and legs and begins to creep.

At this point she is able to engage in transitional movements which allow her to move in and out of a variety of postures by using different combinations of bending, straightening, and turning. She can move from a sitting position to her hands and knees; from her hands and knees to sitting on one side; and from lying on her side to sitting. This gives her more freedom in her movements and she now has more choices available to her for interacting with the environment.

With this advanced motor control and increased postural security, Kellie can use more sophisticated patterns of sitting and reaching, and uses one or both hands to play with toys. She does not have to worry about losing her balance and can shift her weight, lean forward or to the side, or stretch to reach for a toy across her midline. She also practices keeping her balance while standing. She may lean her trunk against a table in order to use her hands to play, or may hold onto the table edge with one or both hands and move her trunk away to shift her weight over her legs. As she gains better control she begins to take steps sideways or forward. She also experiments with kneeling, squatting, and lowering herself to sit on the floor.

During this period, she has increased her postural control so she can assume, maintain, and move out of a variety of positions as well as use active locomotion to explore her environment. By this time, she has all the components of movement.

Refinement Phase (10 through 12 months)

Kellie can now develop more freedom of movement, speed, and coordination. Her balance in sitting is more refined so she can make quick and subtle postural adjustments while playing with toys. She keeps her balance during movement in all directions: forward, to the sides, and backward. This refined balance control also allows her to combine speed and direction of movement during locomotion.

In addition, her hand use is more sophisticated as she gains accuracy in timing and placement, and uses her hands while kneeling and standing. She experiments with a variety of movement patterns while standing, cruising, lowering herself to squatting, kneeling, and she also begins to knee-walk, climb, and walk. There is increased coordination and integration of movement between the two sides of her body and she has advanced levels of active motor control. Growth, development, and skill acquisition continue as Kellie matures. She uses the components of movement to acquire skills such as running, kicking a ball, jumping, hopping, skipping, riding a tricycle, climbing a jungle gym, and swinging. She will eventually incorporate these activities into games and sports.

The infant with a visual impairment tends to show less variety and freedom of movement. Mary may adopt more rounded postures due to decreased muscle tone through the trunk, and may tend to keep her head forward. She may assume a hands-and-knees position and rock back and forth, but creeping forward with reciprocal movements can be delayed or skipped entirely.

In addition, she might maintain a wide base of support in different positions: she may sit on the floor with legs spread wide apart or keep her hands and knees spread apart when in the all-fours position. This limits her ability to shift her weight to allow movement or to rotate her trunk in order to move from one position to another. Indeed, it is often apparent that children with visual impairments move their entire bodies as a unit rather than use trunk rotation. Because of all these limitations, exploration of the environment may be reduced and the manipulation of objects and development of more sophisticated grasp patterns is thus delayed.

Standing may be somewhat scary for her and she may keep her shoulders pushed back with arms bent in a "W" position with feet wide apart to maintain stability. Remember, in early infancy the base of support is essentially the whole body (when lying on the floor), and when the child moves to a more vertical position she must support her weight with her feet. This transition from horizontal to vertical normally occurs in a relatively short time but, for the child with a visual impairment, it may take longer to achieve this as well as initiate movement from more upright positions such as creeping or walking. In addition, creeping or walking in open space is not only intimidating for Mary, but also for her parents who understandably fear for her safety.

However, in order for Mary to learn about movement and the relationships between her body and space, she must have movement experiences. It is important for parents to encourage their child to move and to explore the world. An orientation and mobility specialist can be particularly helpful in teaching parents ways to make the environment safe and to help the child use other sensory cues. Additional suggestions are provided at the end of this chapter.

Fine motor considerations

In the previous sections we saw how Kellie's ability to use her hands to reach for and play with toys became more sophisticated as she developed postural control in her head, shoulders, and trunk. However, other aspects of fine motor development, some of which extend beyond the first year of life, will now be considered.

As Kellie develops, she moves away from using both hands (bilateral hand use) to using primarily one hand (unilateral hand use). This leads to the establishment of hand dominance. At first she uses both hands at the same time to perform a task, such as she reaching for a toy, banging on a surface, or clapping her hands together. Then she begins to use both hands in a reciprocal or alternating pattern. This is seen in creeping or reaching for objects with one hand and then the other. When she is older she will be able to engage in hand movements to songs. Finally, she will be able to use both hands simultaneously but to perform different actions, such as holding a container with one hand while inserting objects with the other, and holding paper with one hand while the other marks with a crayon.

In addition to the progression from bilateral to unilateral hand use, Kellie develops more precise grasp patterns. Initially, she reflexively grasps an object placed in her hand. When she gains more voluntary control, she uses her entire hand to hold the object on the side of the palm closest to the little finger (ulnar grasp). Then she starts to pick up objects in the

center of her palm (palmar grasp) and eventually moves to holding objects on the thumb (radial) side of the palm. She also begins to isolate her finger movements by holding the object farther away from the palm, and uses her thumb and first two fingers (a radial digital grasp). She begins to poke and point with her index finger and then will be able to precisely oppose her thumb and index finger in order to pick up a tiny object (a mature pincer grasp).

She moves away from gross exploration of objects to precise in-hand manipulation of objects. She can then visually and tactually inspect an object by holding it, bringing it to her mouth, transferring it from one hand to the other, and by rotating and moving it with her fingers.

However, grasping objects is not the whole story. An important aspect of fine motor function is the ability to release an object. Just as Kellie first reflexively grasps an object placed in her hand, she unintentionally releases it by opening her hand. She may not even realize that the object is no longer in her hand. When she starts bringing both hands together, she may demonstrate a two-stage transfer: if she holds a rattle in her left hand, she may bring her right hand to it and grasp it, then let go with her left hand by pulling it away.

When she wants to put an object into a container, she may initially hold the object over the opening but not release it. Then she will place the object and her hand on the rim of the container and release the object by sliding her hand down against the surface. As she develops more control, she is able to hold the object above the container, and then releases her grasp so the object drops into the container. She also transfers an object by releasing it just as her other hand comes to grasp it. Soon she is able to engage in more complex tasks requiring accuracy, precision, timing, and control when stacking blocks, completing formboards, pegboards and puzzles, stringing beads, drawing, and writing.

Fine motor function not only enables Kellie to play with toys and learn their properties, it enables her to use utensils to feed herself, use implements like pencils and scissors for classroom activities, and use a toothbrush, dress herself, and brush her hair. In short, the ability to use her hands gives her tremendous freedom and independence so she can perform day-to-day activities as well as pursue her interests.

Notice that all of Kellie's hand function has been guided by vision! Let's examine some of the differences in a child with a visual impairment. If it takes Mary longer to develop adequate stability in her shoulders and trunk

so that she does not practice shifting her weight, or it takes her longer to sit without support or to creep, she will have limited experience using her hands to manipulate objects. Practicing shifting weight while prone would give her the experience of making subtle rotation movements in the forearms necessary for later exploration of objects and functional tasks. Spending time on extended arms would give her the sensory experience of weight-bearing on hands and prepare her hands for manipulation, and creeping would give her practice isolating her arm movements.

In order for Mary to creep toward an object of interest she has to know that people and objects exist even though she is not in direct contact with them. She must feel motivated to get the object, and needs to know that her actions will produce a result (awareness of cause-and-effect relationships) (Ferrell, 1986). She must also be ready to reach and move toward an auditory stimulus or sound.

It is often assumed that an infant with a visual impairment will be interested in a toy that makes noise and that she will reach for it. Sighted infants do not reach for sound until the last part of the first year (9 through 12 months). Infants with visual impairments should not be expected to do this earlier just because they do not have vision available to them (Warren, 1984).

Also, if Mary has to use her arms to keep herself stable in different positions, such as keeping her arms in a "W" position with shoulders pushed back while sitting, it may take longer for her to use both hands together or to transfer objects. The tendency to move without trunk rotation also limits her ability to reach across her midline.

Once she is able to sit without support, Mary may spend a longer time using both hands and therefore may take longer to separate her arm movements and develop isolated movements of the fingers for more mature and refined grasp patterns. She may also spend more time mouthing objects (and smelling them) as a primary means of exploration. This should not be discouraged; however, it should not be allowed to prevent the development of mature hand skills.

Tactile exploration through in-hand manipulation of objects not only gives the child information about those objects, but provides tactile experience in the fingers which will become important in the use of braille.

BEST COPY AVAILABLE

Tactile exploration of objects may also be limited by hesitancy to touch unfamiliar or new objects and textures; by actual tactile defensiveness (refer to the sensorimotor integration chapter); or by self-stimulatory behavior (e.g., hand-flapping, constant eye-poking, and constant hand mouthing). It is important to address these difficulties because tactile exploration through in-hand manipulation of objects not only gives the child information about those objects, but provides tactile experience in the fingers which will become important in the use of braille.

Finally, in order for Mary to be able to perform activities with her hands, she must have experience interacting with a variety of objects, and must learn appropriate strategies to sequence her movements for accuracy, timing, precision, and control for placement and release of objects. This carries over into functional activities. For example, learning to use one hand to find the correct form in a formboard to guide placement of the corresponding block with the other hand will later help Mary use one hand on her plate to guide a spoon to the desired food.

An early childhood teacher of the visually impaired can help Mary learn these strategies as well as provide appropriate adaptations to the environment and materials. The teacher of the visually impaired can also provide parents and others with meaningful activities which maximize the development of the child's fine motor and tactile exploration skills.

Summary

The key aspects of normal gross and fine motor development have been presented, as well as some of the differences which may occur in the development of children with visual impairments. There may also be delays or qualitative differences in certain aspects of gross motor development that were discussed in the sensorimotor integration chapter. These differences include low muscle tone, the tendency to maintain a wide base of support, the tendency to move the body as a unit instead of using trunk rotation, and limited repertoire of movement.

BEST COPY AVAILABLE

The teacher of the visually impaired can also provide parents and others with meaningful activities which maximize the development of the child's fine motor and tactile exploration skills.

Some researchers have suggested that lags in motor development occur selectively in areas where the infant with a visual impairment has limited experience. Infants with visual impairments may achieve certain postural skills such as sitting alone or taking steps with hands held at about the same time as sighted infants, but they may have difficulty with self-initiated movement such as getting into a sitting position, reaching, or walking (Warren, 1984).

It is important to remember that there can be variation. For the child with some functional vision, the picture may be very similar to the development of a sighted child (Warren, 1984), depending upon the degree of vision available and how the child uses it. For the child who is completely blind, there may be specific skills or motor functions that are achieved significantly later. (See the *Oregon Project Skills Inventory*, Anderson, Boignon & Davis, 1986.) Finally, even more significant delays in motor development may be seen in children with conditions beyond visual impairment.

For the child with multiple handicaps and a visual impairment, other factors may delay, disrupt, or interfere with gross and fine motor development including: abnormal muscle tone (too stiff or too floppy); muscle weakness; reduced endurance (perhaps due to chronic respiratory condition or heart disease); skeletal deformities; sensory deficits (such as lack of sensation in the legs due to paralysis); inadequate balance and postural control; uncontrolled or involuntary movements; and delayed cognitive development or mental retardation. For children with these problems, the expertise of an interdisciplinary team and an occupational or physical therapist is helpful in determining the child's needs and in planning an appropriate program.

Suggested activities

What can be done to encourage and facilitate movement and hand-use in children with visual impairments? It is important to provide many opportunities for the child to learn about the world via all the senses. It is also important to provide a variety of experiences and activities meaningful to the child.

Some of the ways that parents and early interventionists can encourage movement and hand-use include:

- Have the parent or primary caregiver carry the young infant in an over-the-shoulder sling. The infant can be placed in a comfortable but posturally adequate position and experiences movement as the adult moves.
- Provide opportunities for the infant to experience different positions: being on her back, side, stomach, sitting up, etc. It is important not to let the infant stay in the same position for extended periods to the exclusion of other positions and it is also important not to let the infant avoid certain positions, such as being on her stomach.
- Help the infant experience movement of her arms and legs. This can easily be done during diaper changes, bath time, or play time. Describe the actions as they occur and name the body parts involved.
- Do not be afraid to engage in bouncing, swinging, or rocking activities with the infant, as long as she accepts and enjoys it.
- Allow the older infant/child to explore her environment. She can crawl over pillows, under the table, around the chair, etc. Use words to describe these actions. Older children can help make their own obstacle courses so they can learn about constructing space as well as moving through it. This also means allowing the child to experience bumps and falls like any other child!
- Give the child appropriate cues (e.g., auditory or tactile) to encourage or remind her to keep her head up.
- Do not assume that an infant is interested in a toy that makes noise and will automatically reach for it before she is ready. Help the infant hold and feel a variety of objects of different sizes, shapes, textures, noise-making qualities, etc. Describe these characteristics and the actions she uses to manipulate them as she plays with the toys.

125

Allow the child to do as much as he can independently.

- Help the child use both hands in front of her body. You can start with larger objects so she has to hold them with both hands, or you can have her hold two smaller objects, one in each hand, while banging them together. Play other hand games with her such as clapping or "Pat-a-cake."
- Present toys and materials from different distances and positions so the child has to move, turn her body, or reach across her midline to get to it.
- Help her use a variety of hand and arm movements while playing with toys (rotating her forearm so that her palm is facing up, poking with her index finger, etc.).
- Allow her to do as much as she can independently, when she is ready: riding a tricycle, climbing on playground equipment, brushing teeth, putting toys away, etc. Consult with an early childhood teacher of the visually impaired and orientation and mobility specialist for specific recommendations.
- If the child has other handicapping conditions, consult with an occupational or physical therapist for appropriate adaptations to the above suggestions.

Bibliography and resources regarding normal development

An asterisk (*) indicates a resource that includes suggested activities designed to enhance development.

Brazelton, T. B. (1969). *Infants and mothers.* New York: Delta Publishing Co.

Caplan, F. (1973). *The first twelve months of life.* New York: Grosset & Dunlap.

Caplan, F., & Caplan, T. (1977). *The second twelve months of life.* New York: Grosset & Dunlap.

Goudy, K., & Winger, J. (1988). *Infant motor development: A look at the phases.* Tucson: Therapy Skill Builders.

*Kleckner, N. (Ed.). (1981). *Growing child.* Indiana: Dunn & Hargitt, Inc.

Bibliography and resources regarding vision and development

*Anderson, S., Boignon, S., & Davis, K. (1986). *The Oregon Project for visually impaired and blind preschool children skills inventory and manual* (5th Ed.). Medford, OR: Jackson Educational Services District.

Barraga, N. C. (1986). Sensory perceptual development. In G. T. Scholl (Ed.), *Foundations of education for blind and visually handicapped children and youth: Theory and practice,* pp. 83-98. New York: American Foundation for the Blind, Inc.

*Barraga, N. C. (1983). *Visual handicaps and learning* (Rev. Ed.). Austin, TX: Pro-Ed.

Ferrell, K. A. (1986). Infancy and early childhood. In G. T. Scholl (Ed.), *Foundations of education for blind and visually handicapped children and youth: Theory and practice,* pp. 119-135. New York: American Foundation for the Blind.

*Kavner, R. S. (1985). *Your child's vision: A parents' guide to seeing, growing and developing.* New York: Simon & Schuster.

Scholl, G. T. (1986). *Growth and development.* In G. T. Scholl (Ed.), *Foundations of education for blind and visually handicapped children and youth: Theory and practice,* pp. 65-81. New York: American Foundation for the Blind.

*Scott, E. P., Jan, J., & Freeman, R. D. (1985). *Can't your child see? A guide for parents of visually impaired children.* Austin, TX: Pro-Ed.

Warren, D. H. (1984). *Blindness and early childhood development* (2nd Ed., Rev.). New York: American Foundation for the Blind.

Tanni L. Anthony, Ed.S.

Chapter nine Orientation and mobility skill development

The understanding of one's body, its position in space, and how to move from one place to another is an important part of every child's learning. Through the process of play, daily living routines, and deliberate learning activities, young children learn to safely and efficiently move throughout their world. The skills involved with independent travel, like most life skills, are founded in the early years of development.

For the child who experiences a sight loss, the process of learning to travel independently is an especially important one. The early skills associated with confidently moving throughout a home or preschool environment set the stage for independent adolescent and adult travel. With this independence, the doors open up to social and recreational activities, future employment, and the regular errands of independent daily life.

Parents and early intervention professionals have a great opportunity to enhance these first actual steps of independence. Early attention to the infant's development and learning environment will help foster the skills needed for safe and purposeful movement. Most importantly, it is a time to nurture the developing child's positive regard for his capabilities as an explorer of his world.

BEST COPY AVAILABLE

Definitions and background information

The process of teaching travel skills to people who are blind or visually impaired is called Orientation and Mobility or, in its abbreviated form, O&M. To best understand what Orientation and Mobility is all about, it is helpful to understand what each word means.

Orientation is knowing oneself as a separate being, where one is in space, where one wants to move out into space, and how to get to that place. To determine this information, the child must be able to use available sensory information and have a basic understanding of his location and the environmental settings in which he will travel. With young children, orientation refers to cognitive and sensory skill development.

Mobility involves the physical process of moving through space in a safe and efficient manner. With the infant and toddler, mobility refers to gross motor development. With the preschool child, mobility includes the use of specific mobility techniques such as using a human guide, protective techniques, and the use of mobility devices and/or a long cane.

An Orientation and Mobility Specialist is an individual who has earned an undergraduate or a graduate degree specializing in the teaching of travel skills to persons who are blind or visually impaired. The purpose of Orientation and Mobility training is to ensure that a person who experiences a visual impairment can safely, efficiently, skillfully, and independently travel in both familiar and unfamiliar environments.

The O&M specialist's ultimate goal with the young child is threefold: first, to continually expand the child's understanding of his own body, his daily settings and his location within each environment; second, to encourage, then refine the child's means of movement; third, to reinforce his purpose to move within his environment so that he is motivated to explore and is capable of accomplishing a goal which requires movement as the means to achieve that goal.

The role of an O&M specialist with young children

The skills involved in independent travel are founded in early development. Most can be found embedded in good early childhood curriculums. Some skills are unique as they are designed specifically for the child who has a visual impairment. An O&M specialist who works with young children has the unique opportunity of working directly with families and early intervention professionals to address the evolution of these skills. She is one of many types of professionals who might be a part of the child's educational team. Her role may be one of a direct service provider or as a consultant to the family and other professionals.

The O&M specialist is in an ideal position to demonstrate how early developmental skills tie into long-term independent travel goals (Anthony, 1992). For example, the skills of auditory localization that the infant demonstrates by turning in the direction of his mother's voice will later be used to determine whether there is oncoming traffic before beginning to cross the street.

The activities of orientation and mobility should be designed to encompass a full spectrum of developmental goals that promotes a true team and *whole child* approach to programming (Anthony, 1992). An example of this principle would be the objective of having the child bring a requested item from the toy shelf in his classroom. This activity involves receptive listening, memory, visual or tactual search, and a specific travel route from one location to another.

The O&M instructor can also assist the family and service providers in analyzing the daily environments of the child for safety factors and for possible modification that will maximize self-initiated and goal-oriented movement. Attention to the child's first learning environments such as his crib or first floor play space promotes the understanding of spatial mapping and the process of moving out into the world.

Components of O&M skill development for the young child

Orientation and Mobility training for the young child has been described as including the seven following components (Hill, Rosen, Correa, & Langley, 1984):

- Sensory development
- Concept development
- Motor development
- Environmental awareness
- Community awareness
- Formal orientation skills
- Formal mobility skills

For the purposes of this chapter, all areas will be covered with information specific to environmental and community awareness merged into other sections. In addition, a separate section is included on purposeful and self-initiated movement. The closing summary will discuss orientation and mobility programming guidelines for the home and preschool center.

Sensory development

Early exposure and stimulation of all the infant's senses are important to the development of the child's ability to take in information about the world around him. The goal is to fine tune the child's ability to respond and utilize sensory information. The parents and service providers must work together to provide the child with meaningful sensory input that is graded to each child's individual needs and tolerance level.

All levels and types of sensory information can be used for orientation and mobility purposes. Sensory information can be used for decoding important environmental information such as the location and identification of objects and the interpretation of approaching or departing people and objects. All sensory systems are involved in the learning process. The four senses of vision, hearing, touch, and smell are especially important for purposes of orientation.

Vision

Visual information about the environment may assist the child who has some degree of sight with determining where he is in space and where he may want to travel. The ability to detect the source of a light, for example, may confirm the location of a window in a room. Sensitivity to high contrast may be useful to discern a dark door from the light colored walls. Color vision may be used to note a particular landmark such as a yellow house next to the school playground.

Parents and teachers can work together to make the home and the educational center environments as visually inviting as possible to encourage the use of vision for exploration and orientation purposes. Attention to lighting, use of high contrast colors, reduced visual clutter, and distinctive visual landmarks are all ways to visually enhance a classroom. Specific suggestions on this topic will be reviewed in the chapter summary.

Hearing

The sense of hearing can offer a wealth of information about one's environment. For the child with a visual impairment, the ability to determine the direction and identify the source of a sound is a highly usable orientation skill. The sound of a familiar voice signals that mother is in the next room, the ticking of the grandfather clock marks the end of the hallway, and the ringing of the doorbell announces that someone is at the front door.

It is important to follow the developmental sequence of auditory localization when working with young children. The infant learns to localize sound in the following sequence: first, sounds presented directly at

ear level; second, at ear level and downward; third, at ear level and upward; fourth, directly upward; and finally, by about 21 to 24 months, in front of his body and at almost any other angle (Kukla & Thomas-Connolly, 1978).

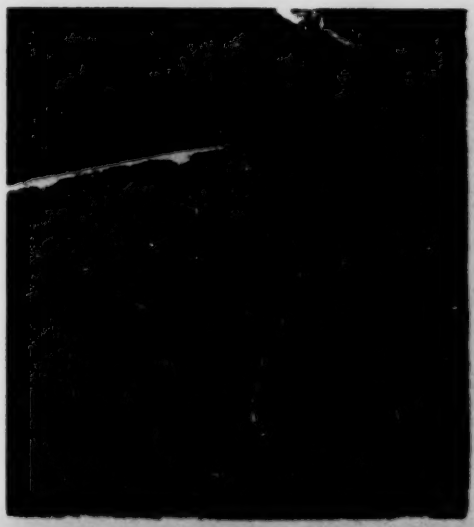
Sounds can also serve as cues to announce an upcoming activity for the young child. A musical toy in the crib may become a tangible and auditory part of bed time; the sound of running water as the child is held near the tub announces the event of bath time; and the jingling sound of the musical instrument box alerts him that the teacher is getting ready for music time.

To reinforce the young child's curiosity and understanding of the sounds in his world, it is important to get in the habit of noting his response to a new sound source. Label the sound so that he learns that each sound has a name. More importantly, allow the child to experience first hand the sound maker. As possible, take the child to the source of the sound to further investigate. As the child becomes mobile, encourage him to travel to the sound to see where and what it is.

Many children who are visually impaired will also use their sense of hearing to give them information about the physical structure of their environment. For example, you may notice the child deliberately making a noise as he walks down a hallway: He is listening to the auditory feedback as it bounces back from the walls. The sound will change when the hallway opens up into a room. This process is called echolocation. Parents and teachers might want to provide the young child with opportunities to move in hallways with tile or wood flooring to allow for experience to learn how to use echolocation.

Touch

Tactile investigation and manipulation play a crucial role in the child's understanding of his world. Tactile information will assist the young traveler in recognizing familiar landmarks and identifying objects encountered along his way. Examples of this skill include the infant who learns the location of the busy box toy mounted on the side of his crib and the young preschool child who identifies his school by the brick on the front of the building. Other examples of tactile landmarks include doors, drinking fountains, railings, or a toy shelf in the classroom.



Tactile investigation and manipulation play a crucial role in the child's understanding of her world.

Olfactory

The sense of smell also plays an important role in a child's orientation in his environment. The smell of cooking in his home confirms the location of the kitchen, just as the smell of flowers might signal the flower bed in front of the house. In the community, certain smells will assist the child in identifying the gas station, bakery, fast food restaurants, and other indoor and outdoor aromatic environments.

Concept development refers to the process of learning new things about oneself, other people, and objects in one's world. The developing infant's first notions involve his own body and the immediate space around him. With nurturing from his family and general maturation, his world expands in size, content, meaning, and time. His understanding of the environment grows to include places and people outside his familiar home setting. It also expands to include more complex knowledge about the characteristics of objects such as their texture, shape, color, and function.

The child who has a visual impairment must learn these early concepts firsthand, through actual functional experience with the involved objects. Concepts should be taught first in a natural context, then reinforced in many different environments and with a variety of objects. Language should be concrete and functional. Learning should occur with the child as a participant and in a manner that initially involves the child's body. As the concept is mastered, it can be further reinforced in a more abstract form.

An example of this "real life" approach can be illustrated by the first lessons in the kitchen. Getting breakfast ready can be an instructional part of the day. Rather than placing the child in his high chair and "magically" presenting the food upon the tray, the child can assist with the preparation process. Together, the refrigerator, cupboards, and utensil drawer can be opened to retrieve the milk, cereal, bowls, and spoons. The words describing these items take on a tangible meaning as the child feels the cold of the milk carton, tastes the sweet of the jam, and so on. After the meal, the child can help bring the items back to their put-away locations.

With this early experience in the kitchen, even a very young child who is carried through the activities of breakfast preparation has an opportunity to build concepts related to mealtime. This level of participation does not have to occur each morning, but should occur as often as possible so that the child learns the routine from a doer perspective. Once he has an understanding of the routine and objects involved, the breakfast scenario can be transferred to an understanding of other mealtimes at other locations such as restaurants, grandmother's house, and during preschool snack time.

Barbara O'Mara (1989) gave a wonderful example of teaching the concepts involved with the physical structure of a room in a concrete manner so that the child would later be able to apply this knowledge to a real, less tangible situation. She shared how one family made a cardboard playhouse for their child. Once inside, the child had the opportunity to learn firsthand about carpeted floors, walls, ceilings, doors, and windows. This child-sized, miniature room provided exploration opportunities that a life-size room could not because of the many out-of-reach areas such as a ceiling or windows.

This miniaturization model worked because the concepts of floors, connecting walls, etc., were not compromised due to the reduction in spatial dimension. In fact, in this case they were enhanced as the child was able to experience the room from a little person's body perspective. It is important to understand that the use of miniature representations is, in most cases, not appropriate until the child has an understanding of the real object. For example, a tiny plastic car does not truly represent the concept of car until the child has full experience with a life-size vehicle and is cognitively ready for a symbolic representation of car. Again, initial exploration opportunities should occur from real life experience with the involved objects and settings.

Body image and spatial relations

In this section, early concepts that are important for the development of orientation skills, and the foundation skills of body image and spatial relationships, will be reviewed.

The infant learns about his body as people touch and move him. Baby massage, touching interaction games such as kissing fingers, toes, and tummies, and a variety of positions provide him with input as to the dimensions of his body. With maturation, he will master voluntary movements such as hand watching, bringing his hands to midline, and bringing his feet to his mouth. These movements give him even more information about the dimensions and parts of his body. In time, as a young toddler, he will learn to label his own basic body parts such as head, leg, arm, hand, foot, eyes, nose, ears, and mouth. As a preschooler, he will learn to identify more complex body parts. Examples of complex body parts are listed in the table below:

Complex body parts

•tongue	•chin	•jaw	•neck	•chest
•shoulder	•forearm	•wrist	•fingers	•thumbs
•waist	•thigh	•hips	•ankle	•heel

As the child is learning complex body parts, he is also beginning to master an understanding of body planes. He begins by understanding the concept of top and bottom as it relates to his body. With maturation and experience, he later learns that his body has a front and back, as well as two sides. The ability to distinguish right and left sides of the body is called laterality. This skill is typically not fully mastered until the age of five to six years.

As with the identification of body parts, the best way for a child to learn the planes of his body is through actual functional experience. Bathing, dressing, undressing, finger plays, and body rhymes (e.g., "I'm a Little Teapot"), and games are great ways to introduce body parts and planes.

Once an understanding of his body parts and planes has been mastered, the child learns to follow directions that involve body parts, body planes, and movement. For example, the child can follow the directions, "Bend your arm forward," or "Walk backward on your toes." Early toddler or preschool gym activities are great for this level of skill development. Early tumbling, "Simon Says" games, and rhythm and music movement activities are entertaining and instructional.

Spatial relations development involves the concept formation of position, location, direction, and distance from one's own body (Morgan, 1992). It also includes these concepts as they relate to objects in the environment. Spatial concepts typically mastered between the ages of 18 to 48 months include those noted on the chart below:

Spatial relations of positioning and placement of self and object placement

•in/out	•on/off	•in front of/behind	•up/down
•over/under	•in between	•higher/lower	•on top/bottom of
•to the side of	•high/low	•facing toward	•left/right*

*will probably not be mastered until age five to six

Size, color, shape, tactile qualities, and function of objects

Through tactile and visual exploration the child learns similarities and differences of the physical qualities and function of objects within his environment. It is important that he has an opportunity to play with objects that are rich in tactile qualities. His first play objects should include real objects that he encounters in his daily care such as spoons, cups, food, bath items, and articles of clothing. The child must first have an experience and understanding of the real item before he can comprehend that item in two-dimensional form. Once he can make this cognitive transition, many

tactile concepts can be presented in the form of a touch book where he can identify and compare tactile qualities. This type of book can be homemade or ordered from the Oakmont Visual Aids Workshop, 310 White Oak, Santa Rosa, CA 95409-5942.

Examples of texture, color, contour, size, shape and function concepts

Texture	•rough/smooth	•hard/soft	•sharp/dull
	•slippery	•bumpy	•jagged
Color	•primary colors	•less common colors	
Contour	•flat	•incline/decline	•straight
	•crooked	•curved	
Size	•big/little	•long/short	•tall/short
	•narrow/wide	•thin/thick	
Shape	•round/circle	•triangle	•square
Function	•used for eating	•used for drinking	•used for bathing
	•used for dressing	•used for grooming	•used for play

Time, distance, amount, and weight concepts

An understanding of time, distance, amount, and weight involves more sophisticated concepts. They develop with concrete experience as the child explores the objects encountered in his travels and experiences the temporal and distance qualities of moving from one location to another. For example, he will learn not only that he has to move across the room to get a favorite toy off of the play area toy shelf but that he has to leave the room and go into another to play on the gross motor equipment. These concepts will play a more important travel role in later years, but have their roots along with the other concepts in the early years of development.

Examples of time and distance concepts

Time	•now/later	•day, night
	•minute, second, hour	•morning, afternoon, evening
	•today, tomorrow, yesterday	
Distance	•closer/farther	•across the room, down the hall
	•to the driveway	•across the yard, street
	•one city block	•inch, foot, yard
Amount	•more	•all/none •empty/full
	•"just one"	•"two," "three," etc.
	•half/whole	
Weight	•heavy/light	•"carryable" or not "carryable"
	•pound	

BEST COPY AVAILABLE

Environmental concepts

With opportunities to explore, the child will learn environmental concepts specific to the content and layout of each setting. Outings to other people's homes, grocery stores, the post office, the local zoo, and other community settings provide the child with an opportunity to compare the similarities and differences of each setting. He will learn that all buildings, for example, have doors, but that some are wood, some are metal, and some are glass. Some doors have knobs, others push open without a knob, while some even fly open as one's feet touch the special mat in front of the door.

And then there are the different types of stairs to encounter! Most children have a shared wonder and fear of escalators. The child with a sight impairment is no exception and will need to know how to master these moving steps to gain full independence. Early exposure should be designed to strengthen both concept development and movement confidence.

Examples of environmental concepts

Indoor concepts	•doors, windows	•walls,ceilings, floors
	•carpet, linoleum, rugs	•stairs
	•escalators/elevator	
Outdoor concepts	•sidewalks, driveways	•streets
	•corners, curbs	•railings, ramps
	•asphalt, dirt, grass etc.	
Types of transport	•cars, buses, airplanes, trains, boats, snow mobiles	
	•strollers, riding toys, trikes, bikes, sleds	
	•skis, roller blades	

Motor development

Motor development encompasses all movement skills such as reaching out to touch a desired object, and the use of a mobility device or a long cane for the purpose of independent travel. It also involves establishing and maintaining body positions such as sitting and standing. This section will be divided into the two main areas of fine and gross motor with emphasis on how skills in each of these areas apply to orientation and mobility skill attainment.

Gross motor skills

Gross motor refers to the balance, strength, and movement skills typically associated with the large muscles of the body. It involves both motor milestones such as achieving head control, rolling, sitting, crawling and walking, and quality of skill attainment. Quality of skill attainment refers to the level of refinement of the skill such as sitting with a straight back instead of with one's legs wide apart with a rounded back. This is especially important for the child who is visually impaired as he is at greater risk of

demonstrating low postural tone (hypotonia) which may greatly diminish the quality of motor skills, particularly those skills which involve balance and strength. Low postural tone often results in the need to use a compensatory pattern such as sitting or walking with the legs far apart to maintain one's balance. Low postural tone may also contribute to poor endurance for a particular motor posture such as independent sitting or the use of a mobility device.

It may be wise to consult with a physical and/or occupational therapist to ensure that the child's motor skills are developing in a manner that reflects good quality of movement. Attention to positioning and special activities to strengthen the trunk muscles are two ways to address the influences of hypotonia. With consultation from a motor therapist, these activities can easily be incorporated into the child's daily care and center-based activities.

Fine motor skills

Fine motor skills involve the use of the upper body muscles for tasks involving the arms and hands. These include skills such as grasping, reaching, turning, pushing, and pulling. Examples of fine motor skills used for orientation and mobility purposes include trailing, reaching out and touching a landmark for identification purposes, protective techniques, and using a mobility device. All of these skills involve at least one of the following types of fine motor skills: grasp, directed reach, wrist rotation, arm extension, and pushing an object in a forward motion.

To develop and refine hand and arm skills, the child must have good upper extremity strength. Low postural trunk tone may also influence the quality and endurance of these skills. An occupational therapist can assist with activities that promote strengthening and refinement of fine motor skills.

Purposeful and self-initiated movement

The first two years of development are known as the sensorimotor period. During this time, the young child's learning is guided by an interwoven relationship of sensory and motor experiences. Movement for the sake of movement is demonstrated, as is movement for the sake of exploration of the environment. Both are important for mastery of motor skills and learning about the world.

Not only should the quality and skill level of the child's movement be encouraged and reinforced, but also its purpose and self-initiation. Purposeful movement involves having an end goal to the movement; whether it be to investigate a sound, retrieve a toy, find a particular room, and so on. Self-initiated movement means that the child spontaneously begins to move out in space. Both aspects will be discussed in this section.

Purposeful movement

Parents and professionals can work together to encourage purposeful movement activities both in the home and the preschool classroom. Infants can be enticed to stretch forward on their tummies to obtain a highly motivating object or approach a person positioned just out of reach so that even the tiniest of self-propelled movement forward occurs. Once the child has a means of reliable ambulation, the motivating item can be placed at further and further distances. "Come to Daddy" can be a fun interaction game that involves very purposeful (and rewarding) ambulation. By 16 months, many toddlers can locate a familiar object kept nearby in a familiar place. By two years, the child is beginning to locate a familiar object located in another room. Also at this age, the child is learning to actively avoid hazards such as stairs.

The preschool-aged child can embark on a more sophisticated search for an object that may not have an exact location, but is in a certain area of a room. Independence with self-help skills opens the doors to purposeful travel; the child can retrieve clothes from drawers, put dirty painting clothes in the preschool hamper, help bring dishes or food to the snack table, find the bathroom, and meet the teacher at the coat rack at the end of the day.

Self-initiated movement

Within the context of orientation and mobility, one of the most important gross motor skills is self-propelled ambulation. No matter what the means of movement is, whether it is rolling, scooting, crawling, or walking, the initial process of self-initiated movement is, in many ways, the child's first true step towards independence. This movement signals the child's motor readiness to move and his cognitive understanding that there is a world out there.

It also signals the child's confidence at moving without assistance. As he becomes more practiced with his motor capabilities and reinforced by the objects that he discovers along the way, the more he will want to explore. Independent exploration and route travel will provide the child with improved orientation to a setting. Just as the driver of the car often has better recall than the passenger of how to get to a particular location, so will the child if he independently moves through the environment to the location himself, as opposed to being led to that same location. Parents, teachers, and peers should be careful not to lead the child around, but to allow him to learn how to do it himself so that the route is internalized from a "driver's" perspective.

Formal orientation skills

Without good orientation, efficient independent travel is impossible (Dodson-Burk & Hill, 1989). As noted earlier, the understanding of one's location in space begins with the knowledge of self. The child must first have an understanding of his body and the notion of himself as a separate entity. As this notion unfolds, so does his understanding of the "world out there."

Orientation competencies involve the practice of skills that are common for all children, and some that are designed for the child with a sight loss. In this section, the skills of using landmarks and clues, orientation to new settings, trailing, and route travel will be reviewed.

Use of landmarks and clues

Environmental exploration begins in infancy as the caregiver carries the child to new parts of the home, physically taking the child to new sound sources to investigate their location and cause, and traveling with the child to new indoor and outdoor environments. During these short journeys around the house, parents can introduce the notion of using clues and landmarks. This process can readily be translated into other environments such as the neighbor's house, the preschool center, and specific places in the community as the child is exposed to these new settings.

A landmark is a fixed object or tactile marker that has a known location within the environment. It is permanent and has at least one unique characteristic that allows it to be differentiated from other objects in that environment. A landmark is used for position identification, to determine a reference point, and to locate specific objectives.

With the preschool-aged child, you can locate the landmark(s) that will be important for use in determining his position in the environment: give it a name or label, determine it's permanence, and note it's recognizable characteristics and functional use to further instill its presence in the child's mind. Then practice using it as a landmark within a familiar route. Examples of landmarks in a preschool environment might include: the classroom door that has a tactile marker on the doorknob, the carpet in the play area, and the cement planter next to the door of the school building.

A clue is any sound, odor, temperature, tactile, or visual stimulus that the child can use to help identify where he is in space. It can also be used to locate a specific objective. A clue may be something that is moving or stationary. Clues are not permanent and cannot be depended upon for consistent use.

To incorporate the use of clues in the child's travel routes, make a habit of calling attention to the sensory information surrounding the child such as smells in the school kitchen and the sound of the computer keyboards in the secretaries' office. With the older preschool-aged child, note the clue, give it a label, discuss what information it provides, associate it with past experience, determine the dependability of the clue, and comment on it as it occurs within route travel to establish its significance.

Orientation to new settings

Pogrund (1992) recommends that the child have opportunities to explore various parts of his home in a systematic manner which "will help the child piece together the environment in a meaningful way." The child will first be familiar with the area where he spends most of his time. As he becomes more mobile, exploration should involve the entire area of the home. The same is true for the preschool setting.

Each room in the house or preschool center should be fully explored. A good example of a room that invites functional exploration is the bathroom (Morgan, 1992). Most bathrooms in houses have fixed items such as the toilet, sink, and cupboards. Through exploration and functional experience, the child will learn where these items are in relation to one another. He will also learn the locations of objects that are typically located in the bathroom such as the toothpaste and combs in the side drawer, the shampoo bottle on the edge of the tub, the soap dish beside the sink, and so on. Once in preschool, the child will learn the specifics about the bathroom in the classroom.

One method of room familiarization that can be used with the preschool child is called the perimeter method (Hill & Ponder, 1976). It is implemented by establishing a travel reference point such as the door in the preschool classroom. The perimeter of the room is then traveled until the child ends up back at the original landmark. As the child moves around the room, he will begin to build a spatial map of the objects located along the way. Encourage one full circuit of the room and then allow the child to stop and explore an area of interest the second time around.

BEST COPY AVAILABLE

Trailing is a concrete means of staying in touch with the environment while moving to a desired location or actively exploring a new environment.

To reinforce the spatial map of the room, the child can be taken to one point of reference such as the classroom door or a favorite place in the classroom such as the gross motor slide. From this location, he should be asked to move to another place in the classroom so that he learns the route to and from one specific location to another. A complete understanding of the whole layout of a room will take time. Begin with one route at a time, choosing areas in the classroom that are highly motivating for the child.

Trailing

The skill of trailing is demonstrated by extending one's arm at a 45 degree angle in front of and to the side of one's body to follow a surface with one's hand. Trailing has its developmental roots in the motor milestone of cruising (Fazzi, 1992). Cruising is typically demonstrated by the pre-walking child as he walks along the furniture while holding onto a travel surface. As the child gains more balance and stability, he will transfer from holding on to furniture to walking while maintaining contact (two hands, then one) on a wall. The wall contact may initially be for support and travel route identification.

The purpose of trailing is threefold: to determine one's position in a particular setting; to locate a specific objective such as the open door to the preschool room; and to maintain a parallel line of travel. Trailing is a concrete means of staying in touch with the environment while moving to a desired location or actively exploring a new environment. It may begin in the home as a way to find the open door of the child's parents' room when he gets up in the morning. At the preschool center, it can be used to move through the hallway to locate the intersecting hallway that then leads to the classroom.

The young child will typically demonstrate trailing with less motor precision than an older child. The hand and arm position may be less exact. Another common modification is that the young child may begin with using two hands on the contact surface. As the child becomes more familiar with the environment and more confident with his independent movement, he will begin to use only one hand for this purpose.

Route travel

The first travel routes that a young child typically learns are ones that have true intrinsic meaning to him. Parents can reinforce early route travel by encouraging their child to travel the final steps to a certain location such as the bathtub at bathing time, the high chair at meal time, or to the toy basket in the living room. This is called backward chaining, where the child learns to accomplish the last portion of the task first. With success, more steps of independence can be added.

The preschool teacher can use this principle in the school building. The first time the child travels with her to the lunch room to pick up the morning snack, they might walk together until the last few steps to the snack cart. The teacher can then verbally and, if necessary, physically direct the child through the last steps to the cart. With repeated experience on the route, the child will be able to travel independently from further and further distances from the cart...until at last he has mastered the whole route.

Formal mobility skills

Formal mobility skills involve techniques that are designed to promote safe and independent travel in people who are visually impaired. Formal mobility skills reviewed in this section include the use of a human guide, protective techniques, mobility devices, and the long cane.

When introduced even in beginner form to the young child, formal mobility skills should be taught by an O&M specialist. Many of these skills will be taught in more sophisticated detail as the child is older, again under the instruction of the O&M specialist.

Guide technique

The process of moving from one location to another with someone helping is called using a sighted guide or a human guide. An older child holds onto the guide by grasping that person's arm just above the elbow. The younger child typically holds one or two extended finger(s) or the wrist of the guide. The child is positioned a half step behind the guide and actively follows the guide's body movements as they move from one location to another.

The intent of using a human guide is not to relieve the child who is visually impaired of his travel responsibility, but to provide the child with the skill of taking an active role when traveling with a sighted person within both familiar and unfamiliar environments. These skills should promote independence as they require the child to be responsive to the physical cues of the human guide while turning, stopping, starting, and navigating through the environment. Being pulled around by peers, parents, and professionals may reinforce dependency on others and also lessen skills of refined movement when using a human guide.

Protective techniques

There are two primary protective techniques that are taught to children who are visually impaired. The purpose of these specific body positions is to provide the child with protection from unexpected objects that may strike his face, chest, waist, or upper leg portion of his body as he moves in an unfamiliar or unpredictable environment. Both techniques can be used in conjunction with one another or one at a time.

One body position is called the upper body technique. Simmons and O'Mara Maida (1992) have simplified the definition by describing this technique as using "one hand as a bumper to protect the body above the waist." To implement it, place one arm in front of the body at shoulder height, bent at the elbow, and parallel to the floor with the palm outward. The second body position, termed lower body technique, has been described as using "one hand as a bumper to protect the body below the waist." To implement this, one arm is held in front of the body in a downward and diagonal position at hip level with the palm inward toward the body.

Fazzi and Pogrund (1992) report that protective techniques have their limitations in the amount of protection they actually provide the child. With the young child, there are motor constraints to factor in due to the physical coordination needed to employ these techniques. These techniques also do not provide protection of the child's body from objects located at the knee-to-ankle level.

To enhance the concept of self-protection, these skills should be taught in a meaningful environment where the child can readily appreciate their use. To avoid the use of overly sophisticated language, the techniques can be called different things such as "Hands out!" so the child can quickly understand what is meant if his parent or teacher calls out for him to assume a protective position to avoid an impending crash. The child should be encouraged to use protective techniques in unfamiliar environments or those known to be obstacle prone.

Use of mobility devices, an adapted cane, or a long cane

A mobility device may be introduced to a child as he approaches, begins, or has mastered independent walking. Examples of mobility devices include push toys such as the Fisher Price Popper Toy, play grocery carts, riding toys with a push bar, and hula hoops. For the pre-walking child, a mobility device might be used to provide the child with support so he can maintain an upright and moving posture.

A mobility device, adapted cane, or a long (white) cane may be introduced to the child who has mastered independent walking. Examples of adapted canes include long canes with two handles (one for the child, one for the instructor to guide movement) or handlebars, and/or canes with wheels, coasters, or gliders (Pogrund, 1992). The distinguishing feature of how these tools are used is that the child does not need this type of tool for upright support. The primary purpose is to act as a bumper to signal the presence of objects on the travel course and as a probe to investigate what

type of object is on the travel course. They serve as a means of protection from obstacles or changes in the ground surface that he may encounter along the way and encourage active investigation of the object encountered.

Clarke (1988) suggests that the device be age-appropriate and acceptable as a mobility tool by the child's family. Some mobility devices will provide more stability as they require both hands to push them. Devices like the Fisher Price Popper Toy are one-handed toys and require more balance for the child to maintain an upright posture while pushing it. Another consideration is the environment in which the device will be used. Portability and travel ease on varied indoor and outdoor ground surfaces are two important variables to consider.

The use of a long cane with preschoolers who are visually impaired is becoming a more common practice among O&M specialists. Supporters of the early introduction of the long cane believe that since the cane is the mobility tool that will most likely be used during the majority of the child's life, it makes sense to begin with the cane as the first mobility device. Another factor of consideration involves the sensitivity of the long cane to provide auditory and tactual feedback as both a bumper and a probe (Pogrund & Rosen, 1989).

The decision of when to provide a mobility device, adapted cane, or a long cane to a young child is one that is highly individualized. Family preference, the child's ability to understand the cause-effect relationship of using this type of travel tool, and his needs based on his regular travel environments are three factors that are important to consider. An O&M specialist should always be directly involved in this decision process and training procedure.

The use of a long cane with preschoolers who are visually impaired is becoming a more common practice among O&M specialists.

Review of O&M programming considerations

In summary, seven key areas will be reviewed with recommended guidelines for promoting orientation and mobility skills. These practices can be used both in the home and the preschool classroom.

Classroom setup

The design of the classroom will be varied from one school to the next. It is recommended that the features of each room be examined to ensure that orientation and mobility skills can be reinforced. Safety, spatial consistency, and the use of highlighted sensory information are three factors that should be considered in each classroom.

Safety

- Examine home and school environments for any unsafe features. Sharp corners on furniture, slippery rugs, electrical outlets, and protruding obstacles should be modified so they do not present a dangerous situation.
- Keep travel pathways clear (Drouillard & Raynor, 1977). Family members, classroom peers, and the child himself should be taught to push their chairs into the table after their use and to pick up their belongings.

Spatial consistency

- Set up the room in an organized layout with clear travel paths from one area to another. Different theme areas in the classroom should have physical boundaries such as shelves, dividing walls, windows, or different floor coverings.
- Provide the child with a designated place for his belongings and apparel. His coat hook and cubby may have a visual or tactile marker to indicate that it is for his use.
- Establish a recognizable location of commonly used items to reinforce their position in the room. Objects used for play should have containers according to their category.
- Use visual and tactile labels to denote the location of objects. For example, a picture of the broom or a few stands of straw from the broom might be mounted on the door of the broom closet.
- If the furniture in the home or the classroom is changed, orient the child to the new layout as soon as he encounters it (Raynor & Drouillard, 1975). If possible, involve the child in the rearrangement process so that he can learn the new layout firsthand.

Highlighted sensory information

- Provide good illumination in the classroom by incorporating a combination of natural and artificial light. High intensity lamps in areas where the child does near-range activities will offer increased illumination to the task at hand and help define that area of the room. Lights controlled by rheostats will help control the amount of light in the room for children who have varying needs for illumination.

- Use high contrast colors to highlight toys from the shelves where they are stored or define a play area with a dark rug on a light floor.
- Use brightly colored or tactile markers to signal a particular location in the room or preschool building. For example, a string of yellow beads tied onto one chair might be used to denote a particular child's chair.
- Interpret available sensory information to reinforce the child's understanding of his location. The sounds and smells of the classroom's rabbit in a cage or the heat of the furnace during the winter months can signal the child's location in a room. This sensory information should be pointed out to the child through functional exploration or, as possible, the source of the clue.

Outdoor play

- Provide the child with a full orientation to the outdoor area whether it be his back or front yard, or the preschool playground. Travel together around the perimeter of the area so that he can begin to understand its physical dimensions. If there is a fence or bushes marking the boundaries, use these items as landmarks and a means to determine the edge of the area. An O&M specialist should be consulted to model and teach orientation strategies to the child, family, and preschool staff.
- Assess the safety level of the outdoor environment. Modify what can be changed and alert the child to any areas that he should specifically avoid.
- Identify landmarks and cues associated with outdoor activities. A rubber mat can identify the location of the door to the preschool room. The use of wind chimes can help to orient the child to his position in his yard or the preschool playground (Raynor & Drouillard, 1975).
- Use a defined storage area for portable outdoor equipment such as riding toys, scooters, and balls. Build a sequence of retrieving and storing equipment at the beginning and end of the outdoor period.
- Provide the child with sunglasses, a brimmed hat, or a visor to reduce glare and eye discomfort, if he is sensitive to light. If the child is also prone to sunburn (e.g., due to albinism), sunscreen should also be utilized for outdoor travel. Gathering these items should be a part of the "getting ready for outside play or travel" routine.
- Consider adding color or high contrast clues to the environment such as painting each item of the playground equipment a different primary color.
- Provide the child with outdoor experiences in a variety of types of weather so the same travel route can be experienced in different weather conditions.

Orientation

- Be specific with your descriptive language. Avoid using "here" and "there" when describing the location of a person or an object (Drouillard & Raynor, 1977).

- Provide a brief verbal description of the position and/or movements of the child (e.g., "You are in the bedroom. Feel the bookshelf by your hand.").
- Reinforce the use of landmarks and cues in both indoor and outdoor settings by calling attention to them, giving them a name, and giving the child a purpose to use them during his travel in the home and preschool environments.
- Encourage independent exploration of a new setting. Begin by helping the child determine a reference point for him to move out from and return to when finished.

Movement

- Build gross motor time into the preschool schedule. It may involve gym time using scooter boards, slides, balls, riding toys, and climbing equipment. Another approach is a functional one such as walking across a variety of different types of ground surfaces such as grass, a bumpy gravel road, and up and down a hill to a great picnic place. The goal is to encourage the child to further refine his balance and movement skills and his confidence of new travel challenges.
- Use music, rhythm, and body games as motivating ways to reinforce movement. These activities can be designed to allow the child free movement time such as spontaneous dancing to music or to achieve a particular movement skill. An example of the latter would be a body game such as "Ring Around the Rosy" where particular movements are associated with the words.
- Create natural obstacle courses such as playing a follow-the-leader hike around the preschool playground equipment, or deliberately set one up in the child's home or preschool center. Obstacle courses can be a motivating way to challenge the child's movement and balance skills, as well as reinforce his understanding of positional concepts such as in, out, through, on top, over, and so on.

Independence and responsibility

- Encourage the child to move on his own to you or to the activity that he is interested in. Avoid carrying or leading the child. If it is impossible for the child to physically travel the entire distance, try to encourage him to independently negotiate the last steps of the route.
- Provide the child with a particular "chore" each day that involves moving from one location to another for a specific purpose. Self-help activities are great tasks to build travel routes around. The activity will need to be age-appropriate, but even a toddler can begin this process by retrieving a clean diaper that is stored just a few feet away in a familiar spot. A preschooler can help find the snack items in the cupboards and bring them to the table or get the container of alfalfa out so that the classroom rabbit can be fed.

- Be patient. Give the child the time he needs to complete the task. Be careful not to rush in and assist him. He needs to learn that he can do it and that mistakes are something that everyone experiences.
- Praise the child for his movement successes. For the child who fears moving out into space, a hug or a cheer may go a long way in encouraging further movement pursuits.

Community exposure

- Bring the child on family errands to the grocery store, the post office, and other locations in the community. If the child is in a preschool situation, the class should take at least a monthly field trip—it might be a walk to the neighborhood library or a bus trip across town to the zoo. Field trips are a wonderful way to identify and compare the physical features of each particular site. Care should be taken to provide the child who is visually impaired with meaningful descriptions and, as possible, physical experience with the items involved with the field trip.
- Encourage independence when the child is out in the community. During grocery shopping, the child's job can be to open the door of the dairy case and find the jug of milk. Another example would be for the child to travel to the corner and locate the mailbox to mail letters with his parents.

Motivating activities

- Remember that these are days of childhood play and exploration. Strive to teach in an environment that embraces the child's developmental level and includes the items that motivate him. These two factors will ensure ongoing success.
- Reward exploration and teach each O&M skill in a motivating context. Orientation and mobility include those first tenuous steps to the arms of a parent, a run down the playground hill to the kiddy swimming pool, or a neighborhood tour to find the mailbox.
- Enjoy the successes, learn from the mistakes, and have fun in the experience of it all!

References and recommended sources of information

Anthony, T. (1992). Movement focus: Orientation and mobility for young blind and visually impaired children. In R. Pogrund, D. Fazzi, & J. Lampert (Eds.), *Early focus: working with young blind and visually impaired children and their families* (pp. 80-88). New York: American Foundation for the Blind.

Clarke, K. (1988). Barriers or enablers? Mobility devices for visually impaired and multihandicapped infants and preschoolers. *Education of the Visually Handicapped,* 20 (3), 115-130.

Dodson-Burk, B. & Hill, E.(1989). *An Orientation and Mobility Primer for Families and Young Children.* New York: American Foundation for the Blind.

Drouillard, R. & Raynor, S. (1977). *Move it!!!* Mason, MI: Ingham Intermediate School District.

Fazzi, D. (1992). Movement Focus: Orientation and Mobility for Young Blind and Visually Impaired Children. In R. Pogrund, D. Fazzi, & J. Lampert (Eds.), *Early focus: Working with young blind and visually impaired children and their families* (pp. 97-107). New York: American Foundation for the Blind.

Hill, E. & Ponder, P. (1976). *Orientation and mobility techniques: A guide for the practitioner.* New York: American Foundation for the Blind.

Hill, E., Rosen, S., Correa, V., & Langley, M.B. (1984). *Preschool orientation and mobility: an expanded definition.* RE:View 16, (2), 58-72.

Kukla, D. & Thomas-Connolly, T. (1978). *Assessment of auditory functioning of deaf-blind multihandicapped children.* Dallas: South Central Regional Center for Services to Deaf-Blind Children.

Morgan, B. (Ed.). (1992). *Resource manual for early intervention with infants, toddlers, and preschoolers who are visually impaired and their families.* Logan, UT: SKI*HI Institute.

O'Mara, B. (1989). *Pathways to independence.* New York: The Lighthouse National Center for Vision and Child Development.

Pogrund, R. (1992). Movement focus: Orientation and mobility for young blind and visually impaired children. In R. Pogrund, D. Fazzi, & J. Lampert (Eds.), *Early focus: Working with young blind and visually impaired children and their families,* pp. 94-111. New York: American Foundation for the Blind.

Pogrund, R., & Rosen, S. (1989). The preschool blind child can be a cane user. *Journal of Visual Impairment and Blindness,* November 1989, 431-439.

Raynor, S., & Drouillard, R. (1975). *Get A Wiggle On.* Mason, MI: Ingham School District.

Simmons, S., & O'Mara Maida, S. (1992). *Reaching, crawling, walking ...let's get moving: Orientation and mobility for preschool children.* Los Angeles: Blind Childrens Center.

Susan Simmons, Ph.D.

Chapter ten Self-help skills

When children are young, cute, and visually impaired, adults find themselves wanting to do everything for them. Sometimes the parents simply find it much easier and faster. It may not occur to the parents that the child can learn to do the task for herself.

The purpose of this chapter is to help you develop an understanding of the sequence of skills needed for independence in self-care, the value of these skills, and how they relate to the child's overall independence.

The value of self-help skills

The primary areas of self-help or self-care skills for a young child include feeding or eating, managing clothing and dressing, washing, grooming, and toileting. These are universal areas of skill development for all young children. However, they are often overlooked or underemphasized when providing services for young children who are visually impaired.

In this day and age, families are often rushed. Frequently, both parents work, and getting a young child off to school in the morning and getting her ready for bed at night are times when waiting for the young child to do things for herself can seem impractical. At school, the assumption is often made that these skills are taught and reinforced at home, and they may not be approached as a part of the child's program. It is not uncommon for children who are visually impaired to have difficulty (or perhaps never

have experienced) putting toothpaste on their own tooth brush. Likewise, children may still have only limited experience in picking out their own clothes during their late elementary school years.

The goal of all education is independence. This is a very important concept. Consider the effect on a child's self-concept when she is dressed, bathed, and partially fed by an adult on a daily basis. There is nothing like the feeling of accomplishing something independently. We often select our clothes based on how we feel or what activities we are planning. When we do this for children we rob them of the pleasure of making such choices. We rob them of independence. On a more global level, as the child grows and matures, not being able to do such self-care activities makes her very dependent. Regardless of the level of academic knowledge a child attains, not being able to care for her own needs is a true handicap.

Most of the recommendations in this chapter deal with the relationship of daily school activities and the development of self-help skills. However, comments are also added to encourage follow-through with parents in the home. As with most skills, self-help skills begin with total adult assistance and move towards total child responsibility as the child matures.

Feeding and eating

Many very young children who are visually impaired resist textured foods because these feel strange in their mouths. It is vital that textures are introduced gradually. If the child spits out certain foods, or gags and chokes on textured foods, do not stop offering them altogether. You may need to first introduce smoother foods with a small amount of texture, then gradually increase the texture. It may be necessary to consult with an occupational therapist or a speech therapist for suggestions for feeding a child who is very resistant to eating textured or age-appropriate foods. Keep in mind that all children develop food preferences, and children who are visually impaired are no exception.

Eating for the very young child who is visually impaired may seem messier at first than it is for other children the same age. The child may need to touch the food. However, meal time should not become play time. This is a great opportunity for the child to experience different textures and smells. The child who is visually impaired needs experience exploring foods with her hands and feeling them on her face. Expect beginning eaters to be messy. Use a bib for the child and some kind of an apron for yourself. A piece of disposable plastic under the child's chair can also help you in managing the unavoidably messy experiences.

Initially, when food is offered, tell the child what it is. For example, "Here is your oatmeal. Mmm, it smells good. It's hot! Feel the bowl." (You guide her hands.) As she develops language and experience, offer her the opportunity to discover what is on her plate. How does it smell? Is it hot or cold? Is it in a bowl or on a plate? What does it feel like? What does it taste like? This is the information sighted people use to integrate such experiences and it will help the child realize the multiple benefits of the sensory information available to her in regular daily activities. As the child's skills develop, make it a practice to ask questions rather than always offer the answers. If adults always provide children information, the children do not need to use the available sensory information.

Make it a practice to eat in the same place all the time. The table, highchair, or other seat should offer good support, and the child's feet should be flat on the floor, on a large block, or on some other support which offers such positioning.

Young children learning to scoop often need to have food put into bowls or pie plates with high sides so they have a surface to scoop against. It is also helpful to get a piece of non-skid rubber to put under the bowl. This can be purchased in stores that sell scatter rugs, as the rubber is used to keep the rugs in place. Try putting a little pancake syrup or honey on the bottom of the dish to help keep it in place. The child learning to scoop should be encouraged to scoop with one hand while maintaining the opposite hand on the edge of the bowl to keep it in place and serve as a reference point. In order to assist the child, sit behind her and offer support, first at the hand, then, as her skill increases, up to the wrist. Eventually, limited support at the elbow will be enough. Of course, the ultimate goal is to be able to withdraw support. Positioning yourself behind her will let her feel closest to doing it herself. If the child is resisting scooping on her own, offer the opportunity to experience scooping when she is the most hungry—at the beginning of the meal. As she develops more skill she will be able to scoop for longer periods.

Eating for the very young child who is visually impaired may seem messier at first than it is for other children the same age.

Avoid mixing foods together. This practice limits the child's experience with tastes, although it is sometimes necessary to mix a small amount of texture such as rice, macaroni, or crunchy cereal with a food the child likes to help build up her tolerance for the texture.

It is important to give dishes and cups a reliable border. It can be helpful to put plates or bowls on a tray so they can be easily located. Once you begin using the tray, do not move a plate or cup without taking the child's hand from behind and moving the cup with it. With experience, this practice will enable the child to locate the object without searching for it each time.

You may need to discuss with an occupational therapist if a child needs to use an adapted spoon or fork which has bent handles or special scoop bowls. However, the objective will be to move toward the use of regular implements. Children with functional vision are often assisted by the use of solid, brightly colored plates, bowls, and plastic utensils. This contrast helps them learn where to look for the dishes and silverware. Keep in mind what the food will look like when selecting these dishes because a deep blue plate may camouflage darker foods. Consider using a darkly colored tray and a bright yellow plate. This combination will show up well, and food can also be seen on the plate. Your choices will depend upon the vision of the child.

Encourage the school staff and the child's family to make a habit of using the same vocabulary for silverware and dishes. Encourage the child to bring the dishes or food to the table as a helper. Allow the child to participate in meal preparation; this develops skills and encourages independence.

Give the child enough time to eat. Decide on the maximum time for a meal—usually 30 minutes is quite sufficient—and end the meal when that time is up. Serve small portions of food. Small children do not need adult-sized portions; this will give the child the opportunity to not only finish the portion, but to request more if she desires it. If you find that the child is not cooperating or does not seem hungry, take a careful look at her schedule. Many young children are fed several snacks a day or are frequently given

It is important for the child who is visually impaired to learn to enjoy discovering.

bottles of juice, milk, or water. These may need to be eliminated or reduced. The optimal time to work on self-feeding is when the child is hungry; for example, at breakfast or at the beginning of any meal.

It is very important to develop a calm atmosphere focused on the meal when feeding time occurs. If your class is in a large center, explain to colleagues, assistants, volunteers, and parents that you would like to have very few interruptions during meal time. When adults come in and out and draw your attention away from the child they are also distracting the child from eating. Young children who are visually impaired can be easily distracted at meal time.

In a preschool or day care center children may bring a snack or lunch box from home. Again, it is important to encourage independence. It is important for the child who is visually impaired to learn to enjoy discovering what is in the box or bag. She can open it, feel the foods in the plastic bags, find the box of juice or thermos, smell the sandwich, then taste it and tell you what she has to eat. This is a much more empowering experience than being told or having her lunch prepared for her. She should also have responsibilities equal to her peers for cleaning up after lunch.

Here is a list of reminders from *Reach Out and Teach,* by Kay Ferrell (1985), for parents teaching eating skills. For those unfamiliar with teaching self-help skills this outline of key points may be useful:

- Be consistent. Try to eat the same number of meals at the same time everyday.
- Eat at the same place for all your meals.
- Be ready for messes.
- Eat your meals together, as a family.
- Make sure your child sits up.
- Be sure your child is in a comfortable position.
- Avoid interruptions.
- Keep the noise level down to normal conversation.
- Use the same words each time for foods, dinnerware, utensils, and actions.
- Let your child use the same dinnerware as everyone else in the family.
- Prepare meals that are balanced in variety and texture, as well as being nutritionally sound.
- Give small portions.
- Let your child touch food, but not play in it.
- Give your child enough time to eat.

- ◆Remember to introduce knives and forks.
- ◆Let your child help.
- ◆Work from behind.
- ◆Give feedback.

Dressing

Young children who are visually impaired often refer to their clothes by the way they feel or by how they were acquired. Soft jogging-type outfits with pull-on pants and top are often favorites of young children. They are easy to put on and feel soft and comfortable. The child may talk about other clothes by referring to the person who bought them, for example, "My Aunt Martha dress," or by the design people always comment about when the child wears the outfit, for example, "My giraffe shirt." These are very reasonable ways to remember clothes and they facilitate the child's ability to select her own clothes.

It is helpful to get into the habit of talking through the dressing and undressing process, as well as having the child do the same. For example, babies can pull their shirts off when they are halfway off their heads. Mothers often make this a game and change their intonation as they laugh and say "Offffff." For many children, it is like peek-a-boo. Even children without sight can enjoy this type of interaction.

Often, people who come in contact with a person who is visually impaired (whether a child or adult) hesitate to refer to colors. Even if a child cannot distinguish colors, it is helpful to talk about them. For example, if the child cannot find her backpack and asks the teacher or another child to assist her, the first question will probably be about the backpack's color. There are many ways to distinguish clothing that are not totally visual. Since coats, sweaters, and jackets at school are often put on the same hook, in the same place, or in a cubby, it is important for a child to be able to identify her clothing by texture or other unique features.

As children get older and more capable, symbols can be put on clothing tags so that the children can match the tags with other like symbols. That way, the child is aware of what clothes go together (similar to *Garanimals*). All children should be able to match clothes and, on occasion, wear unmatched clothes.

Many preschools have small frames with buttons, zippers, etc., on them for the children to use for fine motor practice. The most effective way to practice is with the clothes on. There are vests available commercially that offer the same experience. It is important to encourage parents to purchase clothes with zippers, snaps, and buttons when their child is ready to begin such practice. The best practice schedule takes place several times a day. When assisting children with fasteners, a "hand over hand" method is often beneficial. However, offer assistance from the back of the child so her hands are in the natural position for the task. (For all activities, assisting from behind is preferable.)

Parents have said that it is easiest to practice undressing in the evening before bedtime. Everyone usually has a little more time and is more relaxed than in the morning before school. It is easiest to teach skills in naturally occurring situations that have a built-in reward, such as putting on a jacket before going outside to play, or changing into a bathing suit before swimming. Be sure to allow ample time for the child to complete these tasks.

Toileting and hygiene

Like walking, talking, and self-feeding, the ability to take care of one's own toilet needs is a milestone achievement in any child's developmental progress. Perhaps it is even more significant for the child who is visually impaired because a visual impairment tends to promote dependency. When a child can accept responsibility for her own "toileting," it is not only an outward indication to us of what she is able to do for herself, but it is important to her own inner feeling of being independent from others.

Be sure to allow ample time for the child to complete tasks.

Toilet training a child who is visually impaired is not substantially different than teaching the same task to a sighted child. Kay Ferrell (1985) reminds us that "Toilet training is more than just using the toilet," and offers the following list to emphasize the series of skills involved:

- Recognizing that "full bladder feeling"
- Finding the bathroom
- Pulling down pants
- Urinating or having a bowel movement in the toilet
- Wiping
- Pulling pants up
- Flushing the toilet
- Washing and drying hands
- Leaving the bathroom

Once the child can stay dry for approximately two hours, many professionals discourage parents from using cloth diapers or disposable diapers. The undergarments may not feel different to the child, and it is optimal for the child to be able to sense if she is wet. It is very important for the child to feel it if she is wet, and this must feel dramatically different from feeling dry. However, during the many months that it may require for a child to become reliable with her toileting, parents may become very frustrated with the extra laundry. It is important for caregivers to discuss with the parents the reasoning behind the suggestion to have the child wear cloth underwear and develop strategies as a team.

One area that is unique to children with visual impairments is teaching little boys how to urinate while standing up. Since some boys will not have adequate vision to aim, and many clean-ups can be required, often lessening one's enthusiasm for teaching the task. The most common way to teach this skill is for the boy to locate the toilet, lift the lid, and then position his knees on either side of the narrow front part of the toilet. Leaning forward and putting hands on the wall behind the toilet is often stabilizing. The child then listens. If he is urinating and doesn't hear it hit the water, something is wrong. This is a trying part of toilet training. However, little boys catch on in a short period of time, and it may be embarrassing for the child to have to learn the skill when he is older.

Parents and teachers may find help among the suggestions of Pauline Moor's *Toilet Habits Suggestions for Training a Blind Child* (n.d.):

- Try to establish a habit of toileting at a regular and convenient time: for example, before or after breakfast, or possibly later, depending somewhat on observation of the child's need.
- Be consistent in keeping to the toilet routine, not only in regard to the time element, but also as to the manner of toileting. Children like to do things in the same way. They love repetition. Moreover, it gives them a sense of safety to know just what to expect.
- Use two simple words which will always mean toileting to the child—they may be something generally familiar or originated by the child.
- Provide a comfortable toilet arrangement. A low portable chair or a small seat that inserts into the toilet can be used successfully with some children, facilitating the later change to the regular toilet.
- Stay with the child while she is on the toilet.
- Ten minutes is usually sufficient time on the toilet. Longer stays may cause the child to forget the association and purpose of going to the bathroom. It may also be difficult for her to discriminate between the toilet where she is left for an indefinite length of time and any other place where she is comfortable.
- Always change wet clothing. This helps build up the child's distaste for discomfort. If the child wants to remove the wet clothing, the adult may want to state that she understands how uncomfortable the child is, and then help the child with the change.
- Take the child to the bathroom even though she has just wet her clothing so that the act will become associated with the appropriate place. One may think, "It is too late now," but little children need many concrete clues, and immediate action is helpful.
- Provide the child with clothing that she can easily manage. Training pants are recommended as soon as possible, not only because they foster self-help (the child can easily pull them up and down), but also because they are real evidence that she is outgrowing the diaper stage.
- Suggest to parents that they let the child accompany other family members to the bathroom so she will recognize its conventional use by everyone. It is normal for children to want to imitate and be like others.
- Accept accidents calmly.
- Always expect the best from the child, and give her your genuine approval when it is legitimate. At the same time, withhold undue praise.

Using a washcloth

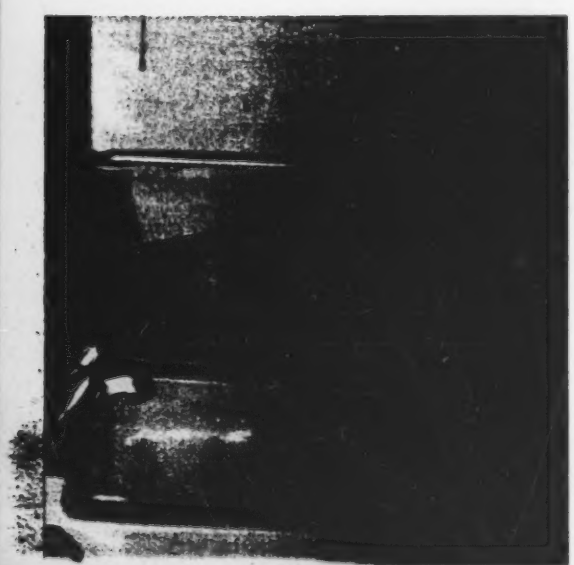
Learning to use a washcloth can be difficult for very small hands. This process can be made much easier if you acquire some very small washcloths, often sold for babies' baths. These small washcloths (or very small wash mitts that stay on small hands) can be much easier for small children to manage. Diluted liquid soap in a dispenser (if they use too much at regular strength it takes forever to wash off) or small bars of soap from hotels make the basic management of the cloth and soap experience much easier. Since most young children enjoy water play, it can be much less distracting to turn the water off after wetting the cloth. This will assist the child in focusing on the activity at hand. It is vital that the child be able to reach the sink and faucet by herself. In some locations this task may require a small stool. The child can practice managing a washcloth by washing medium-sized dolls in a pan of water or by washing her body in the bath tub. Many children enjoy this when a favorite song is sung.

Brushing hair and managing a toothbrush

Young children often enjoy brushing their hair as well as the hair of a doll. Again, this process is best facilitated if the child has a hair brush that fits in her hand. These brushes are available at children's stores.

Managing a toothbrush can be somewhat difficult for a young child who is visually impaired, and therefore it is often omitted from both home and school programs. For very young children it is sometimes easier to put toothpaste on the brush from a miniature tube. Learning to control a tube can be quite a task for a child with small hands and limited vision. Ask friends who travel to save the tiny tubes of toothpaste they may receive on flights. If you travel, look in airports for very small tubes as they are most commonly found there. Toothpaste pumps can be useful as well if you can locate them in small sizes. (The pumps can require a lot of pressure to push.) Another method used for very young children is for the adult to put the toothpaste on the child's index finger; then the child transfers the toothpaste to the toothbrush. Regardless of the method, it is important for the child to develop a sense of control as she gets toothpaste on the toothbrush.

There are several children's songs that refer to brushing, and children often enjoy brushing their teeth to these songs. Some children also enjoy using a commercially bought musical toothbrush.



Managing a toothbrush can be somewhat difficult for a young child who is visually impaired.

Closing thoughts

There are many ways in which adults can help a child with a visual impairment develop her independence. A parent or teacher who takes on the task of aiding a child in her daily activities will be providing a foundation upon which the child can build a meaningful interaction with the world. The successful execution of daily activities takes on deeper meaning as a child grows and gains control of her life. Feeding, dressing, and personal hygiene make up the fundamental areas of one's life that must be mastered before true independence can be attained. By helping a child learn these basic skills, we open up many doors of opportunity for years to come.

BEST COPY AVAILABLE

Teach new skills when and where they come up. You want your child to learn things for a purpose, not just for the sake of learning them.

Bibliography and resources

An asterisk (*) indicates a resource that provides excellent, detailed suggestions for curriculum for both home and classroom.

*Anderson, S., Boignon, S., & Davis, K. (1991). *Oregon project for visually impaired and blind preschool children (5th ed.).* Medford, OR: Jackson County Education Service District.

Brennan, M. (1982). *Show me how: A manual for parents of preschool visually impaired and blind children.* New York: American Foundation for the Blind.

DuBose, R. F. (1979). *Working with sensorily impaired children: Part I: Visual impairments.* In S. G. Garwood (Ed.), Educating young handicapped children: A developmental approach. Germantown, MD: Aspen Systems Corporation.

*Ferrell, K. A. (1985). *Reach out and teach.* New York: American Foundation for the Blind.

Kastein, S., Spaulding, I., & Scharf, B. (1980). *Raising the young blind child.* New York: Human Sciences Press.

Moor, P. (n.d.). *Toilet Habits Suggestions for Training a Blind Child.*

Mary Ellen McCann, M.A.

Chapter eleven Individualized educational plan Individualized family service plan

Working with children with special needs exposes one to a variety of terms and documents which are important in educational programming. Some individuals are involved in the development of the program and its documentation while others are involved in the program's implementation. Regardless of your role, it is important to have an understanding of the process and the terms used. The purpose of this chapter is to give you an overview of the law and the process of obtaining special services.

Historical background

In 1975, Public Law 94-142 was signed into law. This legislation assures the right to a free and appropriate public education for the school-aged child with an impairment. Part of the law stipulates that an Individualized Educational Plan (IEP) must be developed and implemented for the child in need of special services. This document specifies the services and the program goals for that child.

In 1986, Public Law 99-457, Part H, was passed. It directs each state to develop and implement a program of early intervention services for infants and toddlers with impairments, as well as their families. An important component of the law requires the development of an Individualized Family Service Plan (IFSP). This document is developed by the parents in conjunction with the service providers working with them and their child, and addresses family priorities and concerns.

There is no standard IEP or IFSP form, and the document varies from district to district and program to program. Although the IEP and IFSP are documents with similar components, the focus in the development of each is different. The IFSP reflects a family-centered delivery of services. It is a shift in focus from the child alone to the development of a plan for the child in the context of the family's needs and priorities. The IEP is developed for the child and tends to be child-centered with input from the family as to the goals and services to be provided.

Why the laws are important

These laws guarantee a free, appropriate education in the least restrictive environment. The IEP and the IFSP are documents that guarantee designated services and programs be provided to the child with special needs. Before a child's program can be implemented the parent must approve the plan and agree to the services.

The Individualized Educational Plan (IEP)

The IEP is prepared jointly by parents and designated school personnel and describes the goals and objectives as well as the special services to be provided. Every school district or agency develops its own IEP form, but certain components must be included in the document:

- A statement of the child's current level of educational performance;
- Annual goals for the child;
- Short-term objectives;
- A statement of educational and related services to be provided;
- Dates of services (beginning and end);
- A statement of time spent in the program, and the extent to which the child will be mainstreamed with non-handicapped children;
- Individuals responsible for implementation of the program;
- An evaluation plan, which should include a schedule for review. The plan must be reviewed at least once a year.

A minimum of three people must be involved in the development of the IEP:

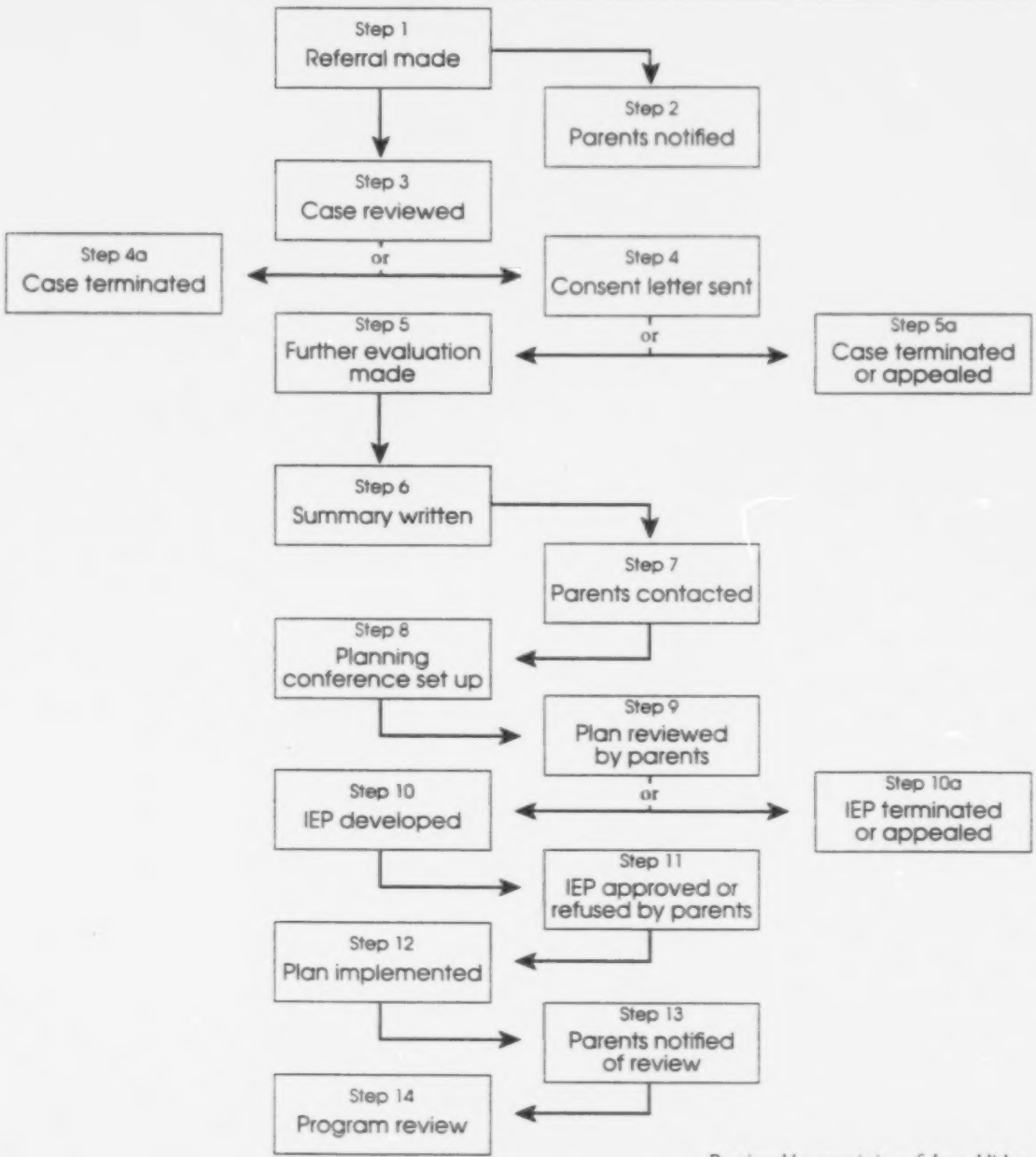
- A representative of the agency who supervises the special program.
- The child's teacher.
- One or both of the parents or guardians.

The meeting takes place at a time mutually agreed upon by all the participants. Parents can invite anyone to the meeting.

The IEP is prepared jointly by parents and designated school personnel.

The IEP process (from *Writing & Implementing an IEP*)

The law requires that the assessment of the child and the development of the IEP be completed within a designated timeline. The following table shows the IEP process and emphasizes the importance of parent involvement.



Reprinted by permission of the publisher.

The Individualized Family Service Plan (IFSP)

The IFSP is the document developed by the family and service providers that addresses the priorities and concerns about the special child in the context of the family. The IFSP process should use a family-centered approach. The process itself is more important than the completed document because the emphasis is on collaboration between families and professionals. It recognizes that parents have the right to decide what is best for themselves and their child. The goal is to establish a multidisciplinary, interagency system of intervention services.

Federal law stipulates the minimum requirements to be included in the IFSP document:

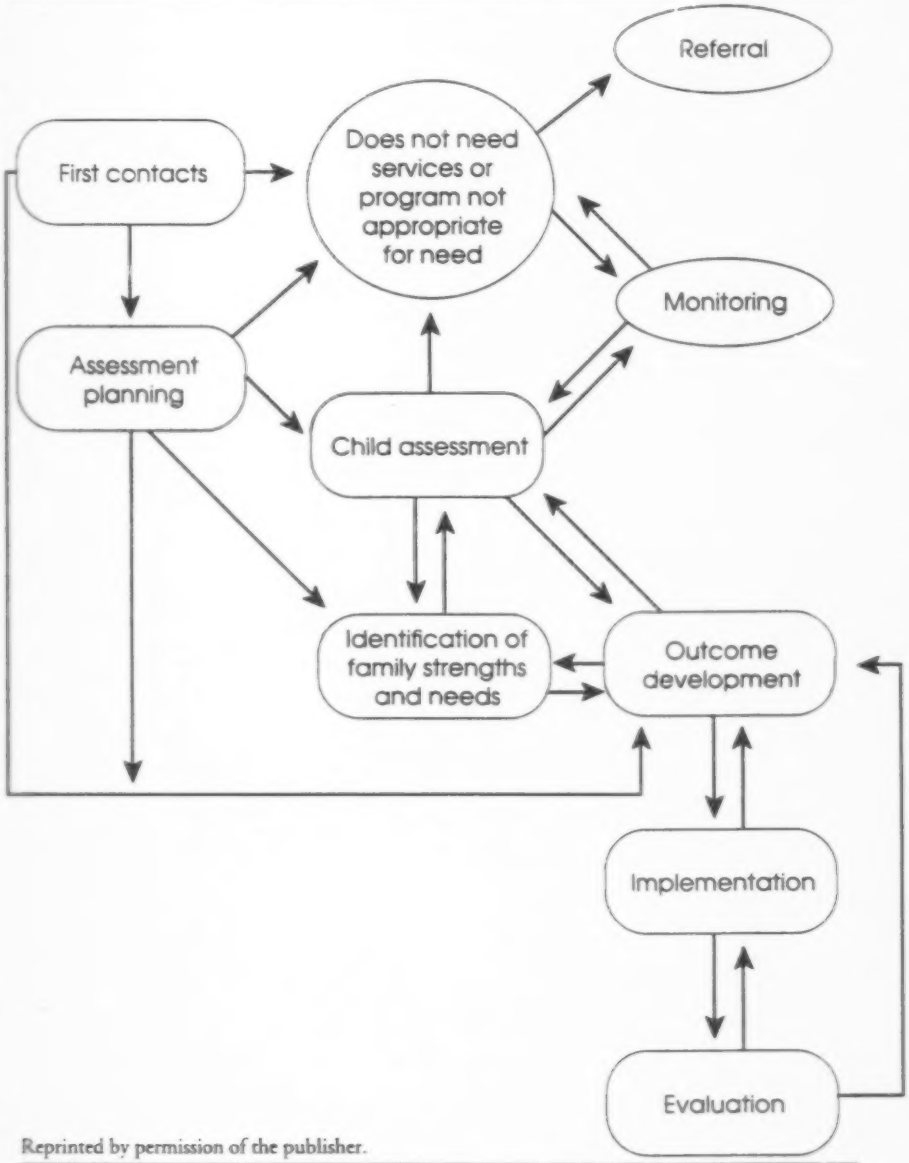
- Information about the child's status including physical development, cognitive development, language and speech development, psychosocial development, and self-help skills.
- A statement of the family's needs and strengths related to enhancing the development of the child.
- Major goals expected to be achieved by the child and family, along with criteria, procedures, and timelines used to assess the progress made toward achieving goals, and whether modifications or revisions are necessary.
- Early intervention services necessary to meet the needs of the child and family to achieve the specified goals. This section should indicate the frequency, intensity, location, and method of delivering the services. A statement of payment arrangements, if appropriate, should be included.
- Medical and other services the child needs, and the steps that will be taken to secure these services.
- Dates and duration of service.
- The name of the case manager who will be responsible for implementation and coordination with other agencies.
- The steps to be taken to support the transition at age three to preschool or other appropriate services. These steps include discussion with and training of parents regarding future placements; procedures to prepare the child for the changes, including steps to help the child adjust to and function in a new setting, and, with parental consent, transmission of information to the educational agency to ensure the continuity of services.

Specific services that the child will need should be included in the IFSP.

The meeting to develop the IFSP should take place within 45 calendar days of the referral of the child, and the document should be reviewed at least every six months and re-evaluated annually.

Examples of the IEP and the IFSP follow in this chapter. As noted earlier, each district and agency develops its own forms to best meet the needs of its population. However, all forms must address the areas discussed in this chapter.

The IFSP sequence (from *Individualized Family Service Plan*)



Reprinted by permission of the publisher.

Special terms to know

Assessment—These are the procedures that determine whether a pupil is an individual with exceptional needs. Health, physical condition, sociocultural background, and behavior in school and at home are considered along with achievement tests.

Family-centered—This approach is based on the concept that the child's parents are more knowledgeable about their child than anyone else. Decisions, goals, and interventions regarding the child come from the family. Policies and practices are family-oriented, and the focus is on enabling and empowering people by enhancing and promoting individual and family capabilities.

Least restrictive environment—A provision of Public Law 94-142 assuring that children with impairments will be educated together with unimpaired children to the greatest extent possible.

Mainstream—This refers to the placement of the special child in an environment with unimpaired children. The IEP should stipulate the amount of time a child will be in a regular classroom environment, as well as describe the activities of the child.

Related services—These include transportation and such developmental, corrective, and support services that are required to assist a child in benefiting from special education. This might include a speech therapist, vision specialist, and orientation and mobility specialist.

Special education—This is specially designed instruction at no cost to the parent designed to meet the unique needs of a child with an impairment. The program should promote maximum interaction between impaired and unimpaired pupils.

An example of the Individualized Educational Plan

An IEP sets goals and objectives based on observation and formalized assessment. Formalized testing is only one of the criteria used to assess a child. Parent observation and observation in the educational setting must play a part in establishing the needs and priorities of the child.

The assessment used for this IEP example was the Oregon Project as well as teacher/parent observations. The formalized assessment helps to establish strengths and weaknesses of the child, and the results are shared with the parents.

Meeting Date: 1/11/93

Blind Childrens Center
Individualized Educational Plan

Student name: Teresa H.
Birthdate: 08/17/89
Parent(s) name(s): Porfirio H.
Esperanza H.
Address: 225 15th St., Los Angeles, California 90029
Home Phone: 213/555-5672
Work Phone: 213/555-4766

Team Participants

Signature, if in attendance	Name	Role/Assessment Responsibility
Laurie S	Laurie S.	Occupational Therapist
Mary Ellen M	Mary Ellen M.	Director of Education
Henry C	Henry C.	Family Counselor
Lorie L.	Lorie L.	O & M Specialist
Cathy M.	Cathy M.	Classroom Teacher
Lena F	Lena F.	Braille Institute
Esperanza H.	Esperanza H.	Parent

I certify that the goals stated in this plan are those recommended by the TEAM and that the indicated services will be provided.

Director of Education: Mary Ellen M
Signature

Response—Circle one: (Parents(s)) Guardian
Sign next to your choice, and comment if you wish

I accept the educational plan Esperanza H.
Signature

I do not accept the educational plan _____
Signature

Comments: _____

Note: The personal information on this form has been changed to protect the family's confidentiality

BEST COPY AVAILABLE

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Student profile

Teresa is a 42 month old Hispanic girl with a diagnosis of R.O.P. Stage IV and V with right retinal detachment. Teresa's left retina has spontaneously reattached. Teresa attends the Blind Childrens Center 5 days a week from 9:00 A.M. to 11:45 A.M. Teresa resides with her biological parents, Esperanza and Porfirio, and three siblings, Monica (age 16), Jose (age 9) and Junior (age 1). Esperanza understands some English, and this year she is very involved in Teresa's education. Teresa has some light perception and appears to have some vision in her left eye. According to the Oregon Project assessment Teresa is functioning between the 20 and 33 month level with many splintered skills.

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Additional information

The family receives WIC, Medi-Cal and Social Security for Teresa. Teresa receives home visits from Marcie H. from Braille Institute twice a month. Teresa receives speech and language services once a week from P.U.S.D., since December 1992. Teresa's mother would like her youngest son, Junior (age 1), to attend the Blind Childrens Center as part of our reverse mainstreaming program. He has been placed on the waiting list.

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Cognitive**

Current Performance Level	General student/family/center goals	Teaching approach and methodology monitoring and evaluation techniques, specialized equipment and material
Teresa demonstrates a good understanding of the classroom routine. She engages in selective listening which makes it difficult for her to attend to the task at hand. She displays a good understanding of the words "up" and "down." Teresa is able to follow directions, but often chooses not to respond to the direction. Teresa exhibits good problem solving skills. When she can not reach something on a shelf she goes and gets a small chair and climbs up to get it.	To develop understanding of positional words, identification of body parts and their functions.	• Teacher made materials. • Toys, puzzles. • 1-1 activities Adequate time allowed for exploration and completion of tasks. 2 and 3 dimensional objects.

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Cognitive**

Specific student/family centered objectives

Code for quarterly review 1=Objective met 2=Significant progress, but not complete
3=In process 4=Objective deleted at parent and school request

	Quarterly review date			
	4/93			
1. Teresa will place objects in, on, under other objects on request 80% of the time. 12 months.	3			
2. Teresa will touch body parts when function is described. ("Show me what you smell with.") 80% of the time. 12 months.	2			
3. Teresa will sort similar objects by size and/or shape with minimal prompting 80% of the time. 12 months.	3			

IEP example (continued)

BCC IEP
Name: **Teresa H.**
Skill area: **Language**

Current Performance Level	General student/family/center goals	Teaching approach and methodology monitoring and evaluation techniques, specialized equipment and material
Teresa is able to receptively identify over 10 body parts. She is able to name some family members and classmates. Teresa attempts to sing songs during circle times but only a few words are understandable. Teresa is able to say more when she wants more. She can name some foods, and objects. Teresa attempts to say words when teachers introduce them to her. Her language delay is of great concern to her family and it is her lowest area of development. Teresa is able to understand simple one and two step commands.	To expand the use of expressive language and the frequency of spontaneous responses in both Spanish and English.	Constantly talk to Teresa in English and Spanish describing what is going on around her and what she is doing. Teresa will be encouraged to make choices throughout the day (activities, foods or toys). Teresa will be given ample time to respond, 5 secs. Teacher will model when needed. Consult with BCC speech therapist for classroom and home activities for Teresa. Teresa receives speech therapy through P.U.S.D. once a week for 30 min. each session. The BCC speech therapist will speak with the P.U.S.D. speech therapist once a month.

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Language**

Specific student/family centered objectives

Code for quarterly review 1=Objective met 2=Significant progress, but not complete
3=In process 4=Objective deleted at parent and school request

	Quarterly review date			
	4/93			
1. Teresa will be able to use 3-5 word sentences to express her needs and experiences, 80% of the time. 12 months.	3			
2. Teresa will engage in spontaneous verbal interactions with teachers or classmates, maintaining the interaction for 3 minutes, 90% of the time. 12 months.	3			
3. Teresa will spontaneously respond to simple questions (within 5 seconds) 90% of the time. 12 months.	2			

IEP example (continued)

BCC IEP
Name: **Teresa H.**
Skill area: **Social**

Current Performance Level	General student/family/center goals	Teaching approach and methodology monitoring and evaluation techniques, specialized equipment and material
Teresa is a happy and friendly girl. She enjoys being in the company of her peers. Teresa separates easily from her mother. Teresa enjoys participating in circle time, she attempts to sing the songs and tries to involve her peers by holding their hands. Teresa primarily engages in solitary play. Her attention span is very short (3 to 5 minutes), which prevents her from participating in organized, cooperative games. Teresa will greet and say "bye-bye" without any prompts when someone enters or leaves the room. She enjoys giving hugs and kisses.	To develop skills in cooperative play and social relationships with peers. To decrease inappropriate behaviors.	1) Engage Teresa in games that will require her to play cooperatively with her peers. 2) Encourage Teresa to attend to an activity by making them short and gradually increasing the time as she understands what is expected of her. 3) Positive reinforcements for good behavior.

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Social**

Specific student/family centered objectives

Code for quarterly review 1=Objective met 2=Significant progress, but not complete
3=In process 4=Objective deleted at parent and school request

	Quarterly review date			
	4/93			
1. Teresa will initiate play with one or more children with one adult prompt, and maintain the interaction for at least 3 minutes, 80% of the time. 12 months.	2			
2. Teresa will decrease inappropriate behaviors (tantrums, ignoring requests, pinching and pulling hair) when frustrated. 6 months.	2			

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Self-help**

Current Performance Level	General student/family/center goals	Teaching approach and methodology monitoring and evaluation techniques, specialized equipment and material
Teresa is able to turn water faucet on and off to wash her hands. She washes and dries her hands independently. Teresa can undress herself if clothes are loose fitting and unfastened. She can take off and attempts to put on her shoes and socks. Teresa drinks out of a cup independently, but she still requires some elbow cuing when scooping her food. Once Teresa gets the food on her spoon she is able to bring it to her mouth without any help. Currently Teresa is in the process of being toilet regulated. She will pull her pants and diaper off and sit on the toilet but rarely urinates in it.	To increase independence in self-help skills in the areas of eating, dressing, toileting and cleaning up after herself.	Teresa will use an adapted spoon and a scooping bowl for self-feeding (as often as possible, food will be mashed so that it will cling to the spoon). Hand over hand assistance when needed to complete a task. Toileting schedule will be developed with the family. Schedule will be followed at home and at school.

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Self-help**

Specific student/family centered objectives

Code for quarterly review 1=Objective met 2=Significant progress, but not complete 3=In process 4=Objective deleted at parent and school request

	Quarterly review date			
	4/93			
1. Teresa will feed herself an entire meal with minimal hand over hand assistance, 90% of the time. 9 months.	2			
2. Teresa will dress herself with some hand over hand assistance to orient clothing, 80% of the time. 12 months.	3			
3. Teresa will urinate when placed on the toilet wetting her pants a maximum of once per week. 90% of the time. 12 months.	3			
4. Teresa will demonstrate the ability to clean up after herself by putting materials away where they belong after she is done playing with them. 90% of the time. 9 months.	2			

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Fine motor**

Current Performance Level	General student/family/center goals	Teaching approach and methodology monitoring and evaluation techniques, specialized equipment and material
Teresa enjoys participating in messy activities. She needs 1 on 1 supervision because she still puts a lot of things in her mouth. Teresa's attention span is very short (3-5 minutes), which makes it difficult for her to complete fine motor activities. Teresa still exhibits some difficulty in manipulating pop-up pals and wind-up toys. Teresa can remove pegs from a pegboard, and put at least 5 large (2") pegs before she loses interest. She can build a tower using 3 (1") cubes, and attempts to string beads. She still uses a whole hand grasp when working with crayons.	To decrease oral exploration. To increase fine motor manipulative skills.	Exposure to and experience with many types of exploratory toys (pegboards, puzzles, lacing activities). Start with large items, as she shows success in acquiring skills, have her move to smaller size objects.

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Fine motor**

Specific student/family centered objectives

Code for quarterly review 1=Objective met 2=Significant progress, but not complete
3=In process 4=Objective deleted at parent and school request

	Quarterly review date			
	4/93			
1. Teresa will be able to explore toys and other classroom materials without putting them in her mouth. 100% of the time. 6 months.	2			
2. Teresa will demonstrate the ability to string small (1") beads with minimal physical prompts, 80% of the time. 12 months.	3			
3. Teresa will assemble a 6-piece wooden puzzle with separate place for each piece. 90% of the time. 12 months.	3			

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Gross motor**

Current Performance Level	General student/family/center goals	Teaching approach and methodology monitoring and evaluation techniques, specialized equipment and material
Teresa is a very active little girl who enjoys exploring her environment. She walks and runs without stumbling. Occasionally she bumps into things. but for the most part she is cautious. Teresa is able to position herself on a child sized chair. She can climb onto an adult chair and sit on it. Teresa can climb up a big slide. She can climb stairs alternating feet, but she has difficulty going down stairs. Teresa will sit momentarily on a tricycle or push toy with her feet. She does not show any interest in riding a tricycle.	To continue to develop and acquire gross motor skills by participating in activities to increase her balance and stability.	Teresa will receive O.T. services once a week for 30 minute sessions. Provide Teresa with various obstacle courses and riding toys (with or without pedals).

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Gross motor**

Specific student/family centered objectives

Code for quarterly review 1=Objective met 2=Significant progress, but not complete 3=In process 4=Objective deleted at parent and school request

	Quarterly review date			
	4/93			
1. Teresa will start and stop locomotor movement on request. 100% of the time. 6 months.	2			
2. Teresa will be able to sit on and move forward on a tricycle by putting her feet on the pedals, 100% of the time. 12 months.	2			
3. Teresa will participate in occupational therapy activities once a week to increase balance and muscle tone.	2			

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Orientation and mobility**

Current Performance Level	General student/family/center goals	Teaching approach and methodology monitoring and evaluation techniques, specialized equipment and material
Teresa is a very active girl with good balance and a stable gait. She enjoys exploring her environment and is able to reorient herself within familiar environments. When reminded she will put her hands out to protect herself. She can also trail a wall when prompted to do so.	Teresa will increase her independence, comfort, and safety through the use of a cane. Teresa will increase her safety by using modified upper protective technique, when cued. Teresa will increase her independent mobility by walking sighted guide with adults.	White cane will be measured for her by the O&M and will initially have bells attached to the tip for weight and sound.

IEP example (continued)

BCC IEP

Name: **Teresa H.**

Skill area: **Orientation and mobility**

Specific student/family centered objectives

Code for quarterly review 1=Objective met 2=Significant progress, but not complete
3=In process 4=Objective deleted at parent and school request

	Quarterly review date			
	4/93			
1. Teresa will travel pertinent routes at school with her cane, utilizing diagonal cane technique (cane in left hand across body) while trailing the wall 4/5 times.	2			
2. Teresa will use upper body protective technique when cued (either by situation or another person) 4/5 times.	2			
3. Teresa will appropriately use proper sighted guide technique—holding onto an adult's finger(s) and walking a half-step behind guide —when walking with an adult.	2			

An example of the Individualized Family Service Plan

The IFSP process establishes family goals, concerns, and priorities. The document is the result of a team effort whose purpose is to develop a program that meets the needs of the family.

The example that follows was developed by Dr. Lisbeth J. Vincent and the SHARE Center for Excellence in Early Intervention. Although it is not for a child with a visual impairment, we see this IFSP as an excellent example of how the collaborative process works.

Individualized Family Service Plan

Child's Name: Adrianna
Child's Birthdate: 04-02-89
IFSP Date: 11-29-91
Age: 32 months
Transition Outcome Included: Yes

Family Concerns, Priorities and Preferred Resources: Identify with the family major areas of concern for the child with special needs and the family as a whole. Also identify how the family solves problems and what types of resources they find helpful.

Adrianna lives with her mother, father, grandfather and younger brother. The family is involved with extended family members and friends from church and their community center. They prefer to use the resources of their local community. They recognize that due to Adrianna's unique developmental needs this will not always be possible. They have already become involved in a parent support group for children with autism through a children's hospital one hour from their home. They believe that Adrianna is best served when she is a full, participating member in her local community. They would like to see the specialized services she receives delivered in these environmentally congruent settings. They want her to attend a neighborhood preschool when she turns three years of age. They want support staff to work with them, their extended family, friends and community to make this successful for Adrianna. The family held several discussions to decide what are their highest priorities for Adrianna right now. They tried to think about what would help them to continue to fully integrate her into the family and community. They also tried to keep in mind what Adrianna would choose if she were choosing her goals. They all agreed that Adrianna seems to understand more than she can express. They would like to see a focus on a communication system for her and them. They want this system to help her relate to other children as well as

IFSP example (continued)

adults. She is interested in what other children are doing and needs a way to engage with them. Mom and dad are concerned that she is progressing on feeding herself very slowly. They worry that this will decrease her ability to fully participate in the preschool setting. They also feel like they need assistance with a toilet training program. They have had excellent success this past six months on teaching Adrianna to follow simple household rules and feel confident that they can carry out a program that is designed around their family's schedule and teaching style. They believe that young children need support and guidance, not punishment. They recognize that Adrianna's favorite activities are to read magazines, such as *TV Guide*, and watch videos of *Sesame Street* and *Mr. Rogers*. They get tired of the same ones over and over, but she does not. They would like to figure out ways to incorporate the videos and magazines into family activities. The family also discussed as an area of priority increasing their financial resources. Adrianna's medical bills from evaluations and specialized ongoing care by a neurologist are not fully covered by their medical insurance. Also, while grandfather and other family members and friends are very willing to baby-sit on a periodic basis, mom and dad are finding that they need more consistent child care than this. Mom is hoping to return to work part-time after Adrianna settles into the preschool setting and both mom and dad are becoming increasingly involved in advocacy efforts on behalf of young children with special needs. They will begin to plan in this area after the transition to preschool, probably in six to nine months.

Outcomes: Identify with the family what goals they would like to work on in the next six to twelve months. Six outcomes were selected by the family in consultation with the early intervention team.

1. Development of a communication system using pictures, signs, gestures and words that allows Adrianna to initiate and respond communicatively;

2. Design and implementation of a toilet training program;

3. Reassessment by an occupational therapist for guidance on a self-feeding program;

4. Development of a transition plan for Adrianna to enter a community preschool with appropriate support services;

IFSP example (continued)

5. Brainstorming with other parents of children with autism and with early intervention staff on how to use Adrianna's interest in books and videos in a family context;

6. Planning for mom's return to work and need for consistent child care in addition to a preschool program.

Child's Strengths and Needs: Identify with the family what the child can do, is learning to do and concerns about his/her development; include information on cognition, fine motor, gross motor, hearing, language, self-help, social-emotional and vision.

Adrianna sleeps in her own room, gets out of bed on her own and comes down a flight of six steps unassisted to the kitchen in the morning. She goes down holding onto the banister, one tread at a time. She indicates that she is hungry by trying to open the refrigerator or by climbing on a step stool to get food off the kitchen counter. She sometimes gets up like this and wanders downstairs into the kitchen in the middle of the night. Once she is up, she does not go back to sleep and someone must stay up with her to supervise. She is starting at these times to settle down onto the couch and watch one of her videos rather than running around. She will mimic the motions from the songs and jabber when Big Bird or Mr. Rogers talks to the kids. She usually watches the video with a sideways glance rather than face forward. She seems to know the songs and characters by the animation on her face and her body language. At her infant program where some of the same songs are sung, she is also beginning to show the sideways glances of attention, though she has not mimicked the teachers or other children yet. Adrianna is beginning to play with small manipulable toys in the classroom and at home. She likes to put beads in a bottle, shake them, watch them spin, dump them out, gather them up and put them in again. She can operate all of the switches on her pop-up toys. She likes the *Sesame Street* one the best. She can pick up the receiver of the phone, push the buttons and both listens and jabbers. She only does this with a real telephone. She is beginning to operate the watches on the VCR at home; she has a child's tape recorder she can operate. She will stab a spoon into food such as pudding, and brings it to her mouth. About half the time it is right side up. She is very interested in sawing butter and bread with a knife. She drinks soda through a straw, reacts by shaking her head to the carbonation and then reaches out for more. Adrianna indicates that her diaper is wet or messy by trying to remove it. She will get you a clean one when cued and usually cooperates to be changed.

IFSP example (continued)

Adrianna has a vocabulary which is hard to predict because she seems to acquire and then loose words and phrases. For example, she mastered "open them," "shut them" and did it to the song for six weeks and has now stopped. She said "bye-bye" at 14 months, stopped at 18 months and has recently started again. She has learned ten signs in the last six months and is using them with reminders to communicate her desires for drinks, food, going outside, etc. If you focus Adrianna's attention and then ask her a question about her day at school or somewhere she went with her family, she will look at you sideways and jabber intently, use hand motions and seem to attempt to answer your question. She initiates interactions with peers in the classroom and family and neighborhood situation. If you attempt to prevent Adrianna from engaging with the other children she will scream, throw toys and hit out at adults. She communicates by touching and rubbing against them and then running away.

Summary of Developmental Levels: This summary of developmental levels is only useful in the context of the preceding discussion of the child's strengths and needs. The numbers should not be used in isolation to characterize a child's development or determine services.

Child's age when developmental levels were determined: 30 months

Cognitive	25 months	Fine motor	27 months
Gross motor	30 months	Language	16 months
Self-help	15 months	Social-emotional	11 months
Hearing	within normal limits	Vision	within normal limits

Outcome #1: What does the family wish to accomplish. Briefly explain.

The family and early intervention team would like to develop a consistent strategy for how they will approach communication with Adrianna. Everyone is finding lots of different methods effective, but they are concerned about confusing Adrianna and themselves. Mom and dad's priority is that she use verbal expression as much as possible. However, they have seen some new work with children with autism which has shown how helpful letter boards and computers are (facilitated communication), and do not want to rule this out. They are concerned that she is easily frustrated when she wants something and they can not figure out what exactly it is. They would like a way for her to indicate her choices and then maybe work on saying the words when she has gotten what she wants. The early intervention team is pleased with how quickly she has picked up on signs and how willing she is to

IFSP example (continued)

use them in the classroom. They too have seen her easy frustration when she is not understood and would like to support her making choices.

The outcome of this objective is that Adrianna will increase her use of words, signs and pictures to indicate what she wants; she will decrease screaming and grabbing.

Identified by: Family and early intervention team

Strategies/Activities: Who will do what, and when will they do it in order to accomplish the outcome.

1. Speech and language therapist from early intervention team will explore having a facilitated communication assessment conducted with Adrianna. She will report back to parents on the details of proceeding within one month.

2. Family will make up a picture book of Adrianna's favorite drinks, snacks, videos, magazines, toys; they will try using this to assist her in communicating what she wants. Teacher or Speech Therapist will make a home visit if mom and dad wish to observe and brainstorm.

3. Adrianna's favorite assistant teacher will make a picture book for her to use at school during play time. It will include picture of children, activities and toys. She will practice with this book twice during each infant session she attends. She will attend three sessions per week.

4. Speech therapist will develop a list of twenty-five new signs in conjunction with family and school staff. School staff will develop activities and materials to work on the new signs and practice old signs at each infant session she attends. New signs will be introduced gradually, approximately 3-5 each week.

5. All will remember to repeat what they hear Adrianna say, expand it to a two-to-three word phrase she is capable of saying, and give her many opportunities to use her words, signs and pictures.

6. Interactions with other children which involve the songs and games she sees on her *Sesame Street* and *Mr. Rogers* videos will be facilitated by school staff. At least one such activity will be included during each session.

IFSP example (continued)

Criteria/Timelines: How will we know if we're making progress.

The family will be asked monthly to complete a status report on choices she is making and how; they will rate whether the screaming and grabbing continues to be a problem. The school staff will keep a weekly log of new words, phrases, signs, and picture choices she has made. They will rate whether her screaming and grabbing continues to be a problem. Her interactions with peers will be observed twice monthly at play time.

Outcome #2: What does the family wish to accomplish. Briefly explain.

The family would like assistance in designing a toilet training program for Adrianna. They have purchased a potty chair and have tried putting her on it, but she does not want to sit. They feel like forcing her will only start temper tantrums and then she will be too upset to really learn. School staff agrees with this. They have tried to coax her to stay seated for a few seconds, but she squirms away. Everyone thinks she is ready to be trained, but often is more interested in what's going on around her. Her teacher wondered if mom and dad would be willing to have the potty chair in from of the TV for a while. Maybe Adrianna would get used to sitting on it while she watched her videos. Mom thought this was worth a try and wondered also if she could use reading magazines on the potty as an alternative at first. This could also be used at school. All decide that this was quite *normalized* though a bit grownup for a three year old!!

The outcome of this is that Adrianna will sit and use the potty appropriately; she will wear training pants rather than diapers.

Identified by: Family

Strategies/Activities: Who will do what, and when will they do it in order to accomplish the outcome.

1. Mom will note what Adrianna's schedule of urinating and bowel movements is at home. She will discuss this with the teacher when she is ready to start the toileting program.

2. Assistant teacher will take Adrianna to the potty twice each morning she is at school. At first, this will be when no other children are in the bathroom. She will give Adrianna a favorite magazine to read as long as she sits on the potty. She will be allowed to sit for up to five minutes.

IFSP example (continued)

3. When family starts toileting program at home, the schedule will be coordinated with school. Approach used will be to take Adrianna to the potty at designated times, ask if she needs to go when other children in the classroom are going or before leaving the house. Adrianna will receive support from adults to use the potty, praise when she goes and be allowed to flush the toilet when potty chair is dumped.

4. If Adrianna resists using the potty chair, holding her on the full size toilet may be tried. If she continues to resist, her magazine will be removed and she will be taken out of the bathroom. If she continues to not want to sit on the potty to such a degree that family feels its being disruptive to continue trying, the toileting program will be suspended for at least one month.

Criteria/Timelines: How will we know if we're making progress.

The family and staff will communicate weekly about progress on sitting on the potty. When Adrianna sits on the potty when taken and urinates and defecates so that her pants are dry and clean throughout the day and night, this phase of toilet training will be complete. The family and staff will decide whether her accidents are so frequent as to be a continuing problem at home and at school.

Outcome #3: What does the family wish to accomplish. Briefly explain.

Adrianna learned to drink from a cup at 18 months of age. An occupational therapist helped the family with teaching her this skill. The therapist also helped them get started on feeding herself with a spoon. During the past year, Adrianna has made little progress in this area. She prefers to use her fingers, be fed by others or not eat. Pushing her to use the spoon results in crying, screaming, spitting, etc. Family and infant teachers are not sure what's happening.

The outcome is that a reevaluation will be conducted by an occupational therapist who has experience working with children with autism.

Identified by: Family and teachers

Strategies/Activities: Who will do what, and when will they do it in order to accomplish the outcome.

IFSP example (continued)

1. Assistant infant teacher, who is Adrianna's service coordinator, will contact the county early intervention evaluation team. Information will be acquired on obtaining occupational therapy evaluation services. Information will be discussed with family within two weeks.

2. Family will talk to other parents of children with autism in their support group and find out strategies and personnel they used for teaching self-feeding skills. Results will be shared with Service Coordinator and infant teachers within one month.

3. Reevaluation will be completed within two months and new program developed and initiated within three months.

Criteria/Timelines: How will we know if we're making progress.

Service coordinator will monitor the attainment of the reevaluation. Family will give input on where they are getting the information they need to move forward on self-feeding.

Outcome #4: What does the family wish to accomplish. Briefly explain.

Family wishes Adrianna at age three to move to a preschool program in their local community which is fully integrated. Early intervention team agrees that such a placement would be ideal for Adrianna. Both are concerned that the necessary support services be identified and provided for this experience to be successful for all, i.e., family, Adrianna, preschool program, other children etc.

The outcome of this objective is that Adrianna will enter a preschool program in her local community and receive the support help she needs to be successful.

Identified by: Family

Strategies/Activities: Who will do what, and when will they do it in order to accomplish the outcome.

1. Family has already visited three preschools and feels that two are possible placements. Infant teacher and assistant teacher have visited these two programs.

IFSP example (continued)

2. School district has been forwarded appropriate paperwork to begin transition planning. This was handled by mom and assistant teacher.

3. Initial meeting with school district is scheduled in one month. Family would like to have reports complete by that time and a statement from infant program supporting full inclusion.

4. Speech and language therapists know three other families whose children are fully included. Mom and dad indicated they would like to talk with these families to see what support services have been helpful. Therapist will contact other families and get permission for Adrianna's parents to contact them. She will do this within the week.

5. Family would like assistant teacher and teacher to accompany them to the first meeting with school personnel. Staff will try to arrange their schedules to meet this request. School district schedules do not always match infant program schedules. Family will request of school district that meeting be held in early afternoon.

Criteria/Timelines: How will we know if we're making progress.

Service coordinator and family will schedule a weekly contact (e.g., phone, notebook), at center to keep up with transition process. Adrianna's placement in a fully integrated preschool setting with appropriate support services will be seen as success. Family will evaluate whether the placement meets these criteria.

Outcome #5: What does the family wish to accomplish. Briefly explain.

Family has heard from other parents of children with autism that Adrianna's interest in magazines and videos is something some of their children show as well. They hope that they can use this interest to foster preacademic and academic skills and to build interactions with other children. Right now it is something Adrianna does alone and in fact she will usually drop the magazine or walk away from the TV screen if someone tries to interact with her.

The outcome is that Adrianna's magazines and videos will be incorporated into family activities at home and activities with other children at school.

Identified by: Family

IFSP example (continued)

Strategies/Activities: Who will do what, and when will they do it in order to accomplish the outcome.

1. Mom and dad will talk to other parents at their support group meeting about this issue. They will keep staff posted on what they hear.

2. Family and early intervention staff will explore ways to use magazines and videos at school with Adrianna and one or two other children.

Criteria/Timelines: How will we know if we're making progress.

When Adrianna's interest in magazines and videos is incorporated into her interactions with family members and children at school, progress will have been made. Staff and parents will discuss this monthly.

Outcome #6: What does the family wish to accomplish. Briefly explain.

Mom is planning to return to work after Adrianna is settled in her new placement. She will probably need child care in addition to the preschool program. She would like for this to also include Adrianna's younger brother who is 14 months old. Mom and dad see planning for this objective as taking place after the preschool program transition.

Identified by: Family

Strategies/Activities: Who will do what, and when will they do it in order to accomplish the outcome.

Criteria/Timelines: How will we know if we're making progress.

Summary of Early Intervention Services: Look at the activities and strategies outlined under the outcomes selected; summarize the Frequency, Intensity and Expected Duration of the services specified.

Home-based program—a one-hour visit per week until Adrianna's third birthday or transition occurs;

Center-based small group of eight children between 2 and 3 years of age—three two-hour sessions per week until her third birthday or transition occurs;

IFSP example (continued)

Speech and language therapy services (consultation model)—a half-hour session with early intervention staff weekly and a half-hour session with family every other week;

Occupational therapy reevaluation and consultation—as needed until new feeding program is designed, including home and center-based service delivery;

Transition planning with family, early intervention program, public school preschool coordinator and private preschool director—weekly contact facilitated by the service coordinator until transition is complete.

IFSP example (continued)

IFSP TEAM

Family
I had the opportunity to participate in the development of this IFSP. It represents my concerns, priorities and outcomes for my child. I give permission for the Early Intervention Program to carry out the plan with me.

_____

Parent(s)/Legal Guardian(s) Date

Service Coordinator
The service coordinator named by this IFSP team is

_____

Name Agency Affiliation Phone Number

IFSP Participants at the IFSP Meeting:

_____

_____

_____

IFSP Participants via telephone or written input:

_____

_____

_____

I have had the opportunity to review the proposal of the IFSP Team and I do not agree with the outcomes or services or agencies selected. I do not give my permission for it to be implemented.

_____

Parent(s)/Legal Guardian(s) Date

Bibliography and resources

Bennett, T. Lingerfelt, & B. Nelson, D. (1990) *Developing individualized family support plans.* Cambridge, MA: Brookline Books.

Hazekamp, J., & Huebner, M. K. (1989) *Program planning and evaluation for blind and visually impaired students.* New York: American Foundation for the Blind.

Lovitt,Thomas (1980). *Writing & implementing an IEP.* Belmont, CA: Fearon Education.

McGonigel, M. J., & Kaufmann, R. K. (1991) *Individualized family service plan.* Bethesda, MD: Association for the Care of Children's Health.

Vincent, Lisbeth J., *Individualized Family Service Plan Document* developed at SHARE Center for Excellence in Early Intervention Division of Special Education, California State University at Los Angeles 5151 State University Drive, Los Angeles, CA 90032

Appendix Materials and devices for young children with limited vision

There is a wide variety of materials available to assist children with impairments in learning skills that are crucial to proper development. These materials must be taught in a systematic, specialized manner.

Many of the items listed in this section can be made, purchased with minimal funds, or might be items you already have. For more specialized equipment, American Printing House for the Blind, in Louisville, Kentucky has developed a number of special devices that are appropriate for preschool children. Through the federal quota system, your teacher of the visually impaired can order items for you from this source at no cost to your program. Contact a teacher of the visually impaired to evaluate the need for special devices and to assist in acquiring them as well as providing instruction in how to use them. A teacher of the visually impaired should be involved in any program involving children with impairments. This is by no means an exhaustive list and presents just a few examples of some of the devices and materials available.

Closed circuit television (CCTV)

A closed circuit television is a marvelous device for people with limited vision. Books or pictures are placed under a small camera and can then be enlarged on the accompanying television screen. Although most young children don't have the dexterity to use the CCTV independently, they

BEST COPY AVAILABLE

should have exposure to it and they can still appreciate its advantages. To help a child's reading, letter recognition activities can be conducted on the CCTV. It is also nice to show children pictures from story books using the CCTV.

Computers

Talking computers can make a great deal of difference in the lives of many children and adults who are visually impaired. Preschool children are not usually given extensive training in this area. However, if you are using an Apple computer in your school, it may be possible to obtain the voice mechanism along with some games that are appropriate to introduce the computer to children who are visually impaired. In addition to aiding in language development, computers can help introduce concepts and reinforce them. Sources for adaptive computer devices (software and hardware) can be obtained directly from manufacturers or from a variety of distributors.

Felt-tip pen

Thick felt-tip pens should be used by both the teacher and the student. They produce a dark, bold line that students with low vision can find beneficial. Try experimenting with different color pens on paper with contrasting colors to find out which is best for an individual's needs. For students who do not have adequate residual vision to use print efficiently, scented markers are available. Of course, these can also be used with students with low vision to aid in motivation and make learning enjoyable.

Fine motor development materials

These materials assist in developing skills in reaching, grasping, pincer grasp, wrist rotation, searching techniques and patterns, and visual-motor and visual-perceptual coordination. A multitude of common items such as large beads with thick string for stringing activities, all types of pegboard kits, lacing kits, puzzles, etc., can be used that are both motivating and appropriate.

Large print/raised line drawing books

These books provide visual and tactual opportunities for students with low vision or complete vision loss. For students with low vision whose reading mode is not yet determined, these books can be an excellent informal assessment tool. They are available through a variety of sources that design and distribute materials for individuals who are visually impaired, or you can ask your teacher of the visually impaired to provide you with a variety of them. Raised line drawing books can be made by simply outlining pictures with glue or another material that will create a tactual line. If you want to add some texture to the line, simply mix the glue with fine-grained

sand and then squeeze it out of the bottle and allow to thoroughly dry just as you would regular glue. You can also make tactual lines by dipping flexible materials such as string or pipecleaners in the glue and placing them over a drawing to dry.

Magnifiers There is a wide variety of magnifiers available that may be appropriate for the child you are working with. Ask your teacher of the visually impaired about their use and if one would be useful in your situation. Children are usually at least four years old before using magnifiers, but this can vary from child to child.

Pegboard kits A wide variety of pegboard kits are available to help develop fine motor skills, manual dexterity, grasp/release skills, and directional terms. For children who will be braille readers, this is an excellent pre-braille activity. Standard kits can be modified to fit individual needs. For example, if you have a student with low vision and the pegboard you have is yellow and the pegs are either yellow or a color that does not contrast with the board color, simply take a black felt tip pen and outline the holes on the board so that the student can visually locate them with greater ease and success. Be aware not only of the size of the pegs and the holes but also of the size of the child's hands and the board, as well as his fine motor skills. For the child whose fine motor skills have not yet been developed, larger pegs are more appropriate. As the child develops more fine motor skills, the pegs can be decreased in size to match the child's developmental level.

Puzzle formboard kits As with pegboard kits, these materials should match the child's developmental level. Formboard kits aid in teaching shapes, textures, size matching, counting, sorting, classification, and directional terms. Different types of these are available from American Printing House for the Blind to fit the individual needs of children who are visually impaired.

Reading stands A wide variety of reading/book stands are available to fit individual needs. There are basically two types: portable tabletop stands that either rest on or clamp to a table, and self-supporting stands that are mounted on a tripod or a heavily weighted base for stability. Both types are usually adjustable for both height and angle. Reading stands make reading and related activities more

For students with low vision whose reading mode is not yet determined, large print/raised line drawing books can be an excellent informal assessment tool.

accessible to children who are visually impaired. In addition, reading stands allow children to read material without having to keep their heads constantly bent over the paper, a posture which not only encourages children to keep their heads down (a common problem with children who are visually impaired) but can be interpreted as socially inappropriate.

Sensory stimulation materials

These materials teach sensory processes in the auditory, tactual-kinesthetic (touch and movement), olfactory-gustatory (smell and taste), and visual modalities. As with fine motor materials, sensory stimulation items can be nearly anything. There are special kits available that have been specifically designed for this purpose, but they tend to have limited applications and are generally quite expensive. Many materials are easily made. For example, sound kits can be made by taking small containers such as plastic eggs or old film canisters and putting different items inside of them. Children can shake them and learn how different items create different sounds. It is best to leave the containers unsealed so that the student listens to the sound and then opens the container to discover what made the noise. This, of course, should be done in supervised and appropriate settings.

Special lamps for proper illumination

Proper illumination is crucial for children with low vision when using their residual vision for any stationary activities. Ask your teacher of the visually impaired to assess the child to determine what type of lighting is most appropriate and then use this type of illumination as much as possible to optimize visual function.

Textured blocks, beads, pads, and other tactual kits and materials

These resources introduce and develop skills such as dexterity, tactile discrimination, memory sequencing, matching skills, diagramming skills, orientation and mobility concepts, spatial awareness, basic concept development, and directional terms. Many of these types of items are available from American Printing House for the Blind.

Typoscopes or reading windows

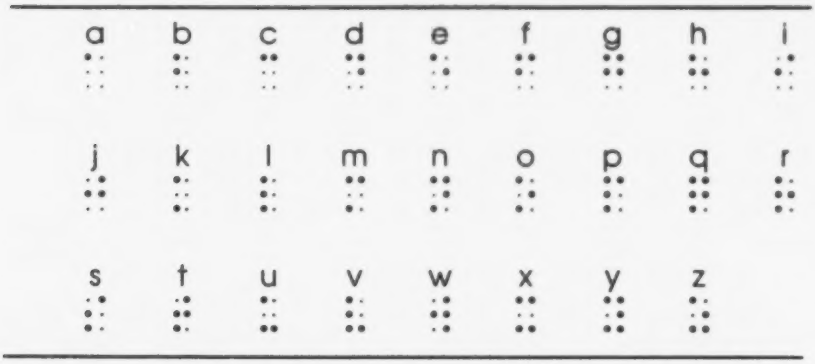
These are templates with windows of various sizes cut out so that the desired object can be viewed. These can easily be made by using a piece of thick paper (construction paper) and cutting the desired size out of the center of the paper. The typoscope's paper should contrast with the material it is to be laid over. Black is a good color because most materials it will be laid over are white. You can experiment with different colors to see which is best for the student. Regardless of which color is chosen, be sure that it is not shiny or it may create glare and diminish visual performance.

Typoscopes are excellent tools in helping students with low vision learn tasks such as where to look, how to isolate letters and pictures on a surface, and how to follow lines in a systematic manner. They also eliminate glare

on white paper and allow the student to view one item at a time, hence avoiding overstimulation. They assist in teaching locating and hand-eye coordination skills by having the student place the typoscope on the paper and arranging it so that only the desired item is showing.

Braille

Braille is a system of reading that incorporates six raised dots in what is known as a braille cell, to form letters, words, and sentences. Following is an illustration of the braille alphabet in print. Actual braille dots would be raised. The thick dots in this illustration represent those dots that would be raised to indicate the letters of the alphabet. The light marks represent those places or positions of the remaining unraised dots in a dynamic braille cell.



Braille is used by individuals who do not possess adequate vision to read large print efficiently. When it is suspected that a young child does not have adequate residual vision to use a print medium, pre-braille skills should be introduced. Examples of pre-braille skills include tactile discrimination, shape discrimination, exploration of the edges of a page and book, bilateral hand coordination, and left-to-right tracking with both hands. When and how to introduce both braille and pre-braille activities is highly individualized, and a teacher of the visually impaired should assess the child in order to make appropriate recommendations. Generally, pre-braille skills are introduced at around age three-to-four, and formal introduction to braille usually begins at approximately age five.

For the student with low vision it is sometimes difficult to determine whether print or braille will be the most efficient medium. As the child matures it will become evident which medium is most appropriate. In the interim, both tactual and visual experiences should be provided which will assist in determining which mode the student is most comfortable and efficient with. Although pre-braille skills are most appropriately taught by a teacher of the visually impaired, parents and other care providers can

introduce basic pre-braille skills and reinforce skills taught by the teacher of the visually impaired. When the child begins to show signs of braille readiness, that is, recognizing braille symbols, it is imperative that a qualified teacher of the visually impaired provide direct services to the child.

Encouraging the child to explore with his hands, feel the difference between sizes, shapes, textures, etc., and other tactile discrimination experiences are some of the activities that can be offered to the preschooler who is visually impaired. The goals in pre-braille skills are to enable the child to use his hands for exploration, to develop good tactile discrimination skills, and to develop an understanding of the connection between braille symbols and their relationship to words. The development of braille reading kills should approximate that of sighted children learning.

A few suggestions for working with young children with limited vision

- Be absolutely certain that the child has been seen by a pediatric ophthalmologist. This is very important. Many children with limited vision may have eye diseases that can be treated. Let the ophthalmologist decide how often the child should visit the doctor.
- Contact a teacher of the visually impaired if you don't have similar training yourself. If you do not have access to a full-time teacher of the visually impaired, be certain to have a functional vision evaluation performed. From this evaluation the teacher of the visually impaired can suggest some functional activities to work on which will give you a place to start. Depending on the individual needs of the student who is visually impaired, this teacher should be available to provide direct services to the student and/or consultation to the classroom teacher and other personnel involved with the student.
- Use materials with high contrast, preferably with the background being the darkest material, such as white on black; for example, a dark blue blanket on the floor with bright squeeze toys on it.
- Use additional illumination. Many children do well in a dark room using bright penlights or a lightbox. (Ask the teacher of the visually impaired about a lightbox.) When working in a darkened room it is important to remember that it will take the child a few moments to adjust to the darkness or dim illumination. Likewise, when going from dark to light it is important to do so gradually. Once the child starts knowing where to look you can add more light. Glare can be a problem, so you should ask your teacher of the visually impaired to help you reduce it.

- When you are going to perform an activity that requires several items in its execution, offer the child the opportunity to examine the pieces in advance so he can concentrate on the task and is not confused by the number of pieces.
- For cutting and coloring activities, outline the images with a large black marker to make the edges easier to see.
- It is helpful to use small trays (often sold for children's art projects) to hold all the pieces. This will assist the child in developing organization skills and help avoid spending time searching for all the pieces. These trays can be helpful during snack and lunch. They can also be used for color contrast with puzzle pieces.
- Use colored glue (you can buy it in colors, or add your own food coloring) for art projects to offer color contrast on white or lightly colored paper.
- Children who have problems with glare from indoor lights can be assisted by putting colored acetate sheets over the page they are working on. They can also wear lightly colored sunglasses or lightly tinted glasses. Yellow seems to be a color that works well for many students, especially those with glaucoma or cataracts. Check with the teacher of the visually impaired for suggestions.

Resources

American Foundation for the Blind, 111 E. 59th St., New York, NY 10022.

American Printing House for the Blind, 1839 Frankfort Avenue, Louisville, KY 40206–3148.

Narcissus Eye Research Foundation, 1850 Sullivan Avenue, Suite 510, Daly City, California (415) 992-9224

National Association for Parents of the Visually Impaired, Inc., P.O. Box 180806, Austin, TX 78718.

Overbrook School for the Blind, 64th St. & Malvern Avenue, Philadelphia, PA 19151.

Computers

Don Johnston Developmental Equipment, P.O. Box 639, 1000 N. Rand Road, Building 115, Wauconda, IL 60084-0639 (800) 999-4660

Dunamis, Inc., 3620 Highway 317, Suwanee, GA 30174, (800) 828-2443; (404) 932-0485

Sunburst Communications, 39 Washington Avenue, Pleasantville, NY 10570-2892, (800) 431-1934; (914) 769-5030

UCLA/LAUSD Intervention Program, 1000 Veteran Avenue, Room 23-10, Los Angeles, CA 90024, (213) 825-4821

Index

A

Abdominal, 104
Abnormal, 26, 38, 87-88, 94, 111
Abnormalities, 28-29, 32
Abnormality, 28, 32
Academic, 5, 38, 56, 86, 140, 182
Acculturation, 53
Acetate, 193
Adolescence, 6, 40
Adolescent, 115
Advocacy, 46, 49, 175
Advocates, 46
Age-appropriate, 11-12, 19, 58, 132, 135, 140
Akeson, N., 31, 34
Albinism, 31-32, 134
Albino, 31
Alcohol, 43
Alfalfa, 135
Alonso, L., 22
Amaurosis, 32-33
Ambulation, 126
American Foundation for the Blind, 16, 22, 34, 68, 82, 114, 137-138, 150, 186, 194
American Printing House for the Blind, 16, 187, 189-190, 194
Anderson, S., 111, 114, 150
Anglo-american, 53
Angular, 86
Anomalies, 32
Anthony, T., 115, 117, 137
Aqueous, 24
Argentines, 53
Armenta, F., 35, 53, 56
Asburt, T., 34
Assessment, 8, 11, 33, 38-39, 46, 52, 56, 88, 91, 137, 153, 155-158, 178, 188-189
Assessments, 18, 21, 88
Auditory, 9, 11, 13-14, 62, 85, 96, 109, 112, 117-119, 132, 137, 190
Autism, 58, 92, 174, 176-177, 180-182
Auxiliary, 74
Ayres, A.J., 83

B

Bailey, D.B., 60, 68
Barraga, N.C., 114
Baseline, 59-60, 63-64

Batshaw, M.L., 34
Bazron, B., 56
Behavioral, 45, 58, 87, 93, 96
Behaviors, 4-5, 10, 15, 23, 43, 45-46, 53-54, 58, 60-62, 66, 77, 87, 90, 92-93, 164-165,
Bennett, T., 186
Bereavement, 41
Bilateral, 86-87, 89, 96, 107, 191
Biological, 7, 158
Bissell, J., 98
Blindism, 91
Blindisms, 58
Blindness, 16, 23, 25-26, 28, 33, 82, 89, 91, 101, 114, 138
Blurriness, 25
Boignon, S., 111, 114, 150
Bonner, M.A., 16
Bowel, 146, 179
Braces, 20
Braille, 13-14, 109-110, 157, 159, 189, 191-192
Brain, 24, 29-31, 33, 84-86, 88, 98, 103
Brazelton, T.B., 99, 114
Brennan, M., 150
Bricker, D., 38-39, 56
Brodie, F.H., 16
Buchholz, S., 8, 16

C

Caffeine, 43
Calvello, G., 16
Camera, 187
Caplan, F., 99, 114
Caplan, T., 99, 114
Caregiver, 4, 8-9, 12, 71-72, 112, 127
Caregivers, 4, 6, 9-10, 71, 75, 78, 146
Caregiving, 6, 8-9
Cataract, 27
Cataracts, 27, 193
Cause-and-effect, 9, 13, 109, 132
CCTV, 187-188
Center-based, 125, 183-184
Cephalocaudal, 100
Cerebral, 88, 91
Certified, 20
Certify, 157
Cf, 25
Chaining, 129
Chandler, M., 7, 16
Channel, 21
Channels, 50
Characteristic, 14, 32, 75, 127
Characteristics, 7, 71, 76, 101, 112, 120, 127
Chart, 25, 66, 122
Checklist, 66
Checklists, 99
Chen, D., 3, 16
Chernus-Mansfield, N., 35, 40, 42, 56, 82
Child-centered, 152
Childrearing, 52
Choroid, 24, 28-29, 31
Chromosomal, 32
Chronic, 41, 59, 111
Chronological, 12
Chronologically, 12, 39
Clarke, K., 137
Classmates, 15, 61, 162-163
Classroom, 5, 17-19, 21, 33, 36, 58, 60-63, 65-66, 78-79, 83, 87-88, 90-91, 93-94, 98, 108, 117-119, 126-129, 133-135, 150, 156-157, 160, 162, 169, 176-178, 180
Classrooms, 61, 66
Clean-up, 11
Clean-ups, 146
Clinical, 83
Cognition, 176
Cognitive, 5-7, 10, 59, 83, 89, 91, 100, 111, 116, 122, 126, 154, 160-161, 177
Cognitively, 95, 121
Coloboma, 28-29, 32
Colobomas, 28-29
Communicating, 178
Communication, 4, 19, 46-47, 52, 69-72, 81, 174-175, 177-178
Communications, 52, 194
Community, 46, 50, 52, 117, 120, 124, 127, 136, 174-175, 181, 200

Computer, 128, 188
Computers, 18, 177, 188, 194
Concept, 5, 7, 13, 79-80, 100-101, 117, 120-122, 124, 131, 140, 156, 190
Concepts, 5-7, 10-14, 47, 83-84, 93, 99-101, 120-124, 135, 188, 190
Conceptual, 45
Conceptualization, 54
Conceptualize, 41
Conceptualized, 38
Conduct, 18, 46, 50, 93
Congenital, 26-28, 30-33
Congenitally, 82
Conjunction, 52, 130, 151, 178
Consonant, 73
Consonants, 72-73
Consortium, 16
Contacts, 155, 87
Convulsed, 43
Cornea, 23-24
Correa, V., 117, 137
Cortical, 33
Cosmetic, 28
COTA, 20
Counseling, 32, 41
Counselor, 157
Counterproductive, 37
CP, 91
Criteria, 154, 157, 179-183
Cross, T.L., 56
Cross-cultural, 52, 56
Cross-eyed, 29
Cruise, 4
Cruising, 106, 129
Cruz, D., 16
Cryotherapy, 26
Cultural, 38, 43, 51-54, 56, 100
Culturally, 51-54, 56
Culture, 52-55
Curriculum, 11, 83, 150
Curriculums, 116
Cutsford, T.D., 82

D

Davis, K., 111, 114, 150
Deaf-blind, 137
Deafness, 32
Deformities, 111
Demographics, 51
Denial, 51
Dennis, W., 56
Developmental, 3, 6-9, 11-12, 19, 38, 40-41, 46, 56, 59, 99, 117-118, 129, 136, 145, 150, 156, 174, 177, 189, 194
Developmentally, 11-12, 39, 60-61, 95
Devices, 18, 21, 116, 130-132, 137, 187-188
DeVillers, J., 74, 82
DeVillers, P., 74, 82
Dexterity, 14-15, 187, 189-190
Diagnosis, 8, 20, 29, 32, 35-43, 45-47, 50, 56, 158
Diagnostic, 35, 43, 47
Dietz, S.J., 16
Digital, 108
DiMatties, M.R., 98
Disabilities, 8, 11, 39, 58, 90-91, 97, 101
Disability, 17, 43, 46, 52, 56, 87-88
Disabled, 46
Disabling, 43-44
Discriminate, 87, 147
Discrimination, 10-11, 14, 190-192
Discriminatory, 85
Disorder, 33, 91
Disorders, 26, 98, 103
Dizziness, 96
Dizzy, 38, 87
Dodson-Burk, B., 127, 137
Dominguez, B., 22
Dominguez, J., 22
Drouillard, R., 133-134, 137-138
Dubose, R.F.,150
Dunamis, Inc., 194
Dunlea, A., 71, 74, 76, 82
Dysfunction, 41, 87-88
Dysplasia, 29

E

Ear, 30, 58, 86, 119
Echoing, 74
Echolalia, 74, 76
Echolocation, 92, 119
Ecological, 53
Electroretinogram, 32
Empowered, 53

Empowering, 47, 143, 156
Enablers, 137
Endocrinologist, 29
Environment, 4-5, 7-8, 10-12, 14, 17-19, 24, 26, 53, 57-58, 60-61, 66, 70, 72, 77-79, 81, 84-89, 92-94, 104-107, 110, 112, 115-116, 118-120, 122, 125-132, 134, 136, 152, 156, 170, 172
Environmental, 4, 7, 18, 32, 57, 93, 97, 101, 116-118, 124
Environmentally, 174
Environments, 6-7, 18, 61, 116-118, 120, 127, 130-133, 135, 172
Equipment, 5, 7, 13, 18, 20, 53, 88, 91, 94, 113, 123, 134-135, 160, 162, 164, 166, 168, 170, 172, 187, 194
ERG, 32
Erikson, E., 6, 16
Ethnocentric, 55
Eye, 9, 12, 20-21, 23-29, 31-34, 58-59, 71, 77, 86, 91, 134, 158, 192, 194
Eye-gouging, 59
Eye-poking, 58-60, 63-64, 92, 110
Eyeball, 23-24, 26-28
Eyebrows, 31
Eyes, 5, 15, 26, 29-31, 33, 36-37, 75, 103, 121

F

Family-centered, 152, 154, 156
Family-guided, 56
Family-oriented, 156
Fazzi, D., 22, 57, 129, 131, 137-138
Feedback, 9-10, 13, 15, 144, 84, 87-88, 104, 119, 132
Felt-tip, 188
Ferrell, K.A., 8, 16, 99, 101, 105, 109, 114, 143, 146, 150
Fetal, 23, 28
Fewell, R.R., 16
Fibroplasia, 26
Finger-flicking, 58
Fingerpainting, 87, 90
Fink, B., 98
Fisher, J., 98
Ford, E., 16
Formboard, 110, 189
Formboards, 108
Fragility, 43
Fraiberg, S., 8, 16
Freeman, R., 34, 114
Friedman, C.T., 16

G

Garwood, S.G., 16, 150
Genetic, 32, 100, 103
Gestural, 6
Glaucoma, 27-28, 193
Goudy, K., 101, 114
Grief, 41-42, 46, 50-51
Guatemala, 53
Gustatory, 85

H

Hand-eye, 86, 191
Hand-flapping, 58, 90, 92, 110
Handicap, 140, 38, 87
Handicapped, 16, 150, 22, 34, 68, 114, 137
Handicapping, 105, 113
Handicaps, 22, 34, 68, 83, 91, 93-94, 96-97, 111, 114
Hanson, M.J., 45-46, 51-52, 56
Harrell, L., 31, 34
Hayashi, D., 56, 82
Hazekamp, J., 186
Head-banging, 92
Head-drooping, 58, 63
Hemiplegia, 91
Hereditary, 31-32
Heredity, 26
Heterogeneity, 54
Heterogeneous, 53
Hetherington, M., 16
Hill, E., 137
Hg, 28
Homogeneous, 54
Horn, M., 35, 40, 42, 56, 82
Horowitz, F.D., 16
Huebner, M.K., 186
Hughes, M., 57
Hydrocephalus, 30
Hygiene, 145, 149

Hyperactive, 87
Hypersensitive, 87, 94
Hypoactive, 87
Hypoplasia, 29
Hyposensitive, 87
Hypotheses, 54
Hypotonia, 125

I

IEP, 151-153, 155-173, 186
IEPs, 96
IFSP, 56, 64, 151-152, 154-155, 174-185
Impairment, 7-8, 17, 19, 23, 25, 30, 32-33, 35-36, 38, 40-42, 50, 58-59, 71, 77-78, 82-83, 88-92, 96, 99, 101-109, 111, 116, 118, 120, 124, 138, 145, 149, 151, 156, 174
Impairments, 3, 6, 8, 19, 26, 55, 57-58, 60, 62-63, 75-76, 80, 91, 99-101, 106, 109-111, 146, 150-151, 156, 187
Indians, 53
Individualize, 54, 94
Individualized, 132, 151-155, 157, 159, 161, 163, 165, 167, 169, 171, 173-175, 177, 179, 181, 183, 185-186, 191
Infancy, 4, 6, 34, 107, 114, 127
Infantile, 101-102
Infection, 32
Infections, 30
Inherited, 30, 32
Institutions, 52
Intervene, 39
Intervention, 16, 19, 21, 33, 36-38, 40, 45, 51-52, 63-64, 81, 93, 115-116, 137, 151, 154, 174-178, 181, 183-186, 194
Interventionist, 36, 52
Interventionists, 52, 112
Interventions, 8, 28, 47, 53, 101, 156
Intoxication, 30
Intra-ethnic, 53
Intra-family, 39
Isaacs, M., 56
Isenberg, S., 34

J

Jan, J., 34, 114
Johnston, D., 194
Jose, R., 22, 34, 59, 63-64, 158

K

Kastein, S., 150
Kaufmann, R.K., 186
Kavner, R.S., 114
Kekelis, L., 56, 82
Kierkegaard, S., 37
Kinesthesia, 85
Kinesthetic, 85, 88
Kirk, E., 30, 34
Kleckner, M., 99, 114
Kukla, D., 119, 137
Kübler-Ross, E., 41, 56

L

Lampert, J., 22, 137-138
Landmark, 118, 125, 127-128
Landmarks, 118-119, 127, 134-135
Langley, M.B., 117, 137
Laterality, 122
Latino, 53, 56
Latinos, 53, 56
Leber, 32-33
Legislation, 151
Lighthouse, 137
Linguistic, 51, 70-71, 76
Locomotion, 8-9, 102, 106
Locomotor, 171
Lovitt, T., 186
Low-pitched, 94
Lp, 25
Lynch, E.W., 56

M

Macula, 24, 31-32
Magnification, 18
Magnifiers, 21, 189
Maldeveiopment, 28
Malformation, 29
Mannerisms, 58
Maturation, 120-122
Maxfield, K.E., 8, 16
McCann, M.E., 17, 151
McCollum, A.T., 37, 40, 42, 56

McGonigel, M.J., 186
Mechanism, 71, 188
Mechanisms, 45
Medi-cal, 159
Mercury, 28
Metabolism, 29
Mexican, 53
Mexican-American, 53
Microphthalmia, 32
Midline, 29, 94, 105, 109, 113, 121
Milestone, 145, 100, 129
Milestones, 8, 11, 41, 99-100, 124
Minorities, 51, 54
Minority, 52-53
Moor, P., 22, 147, 150
Moore, S., 16
Morgan, B., 137
Morgan, E., 16, 122, 128, 137
Morpheme, 70
Morphemes, 70
Morphology, 70
Moses, K.L., 56
Multihandicapped, 137
Myelomeningocele, 97

N

Nagaishi, P., 83, 99
Nelson, D., 186
Neurological, 30-31
Neurologist, 175
Non-handicapped, 152
Norris, M., 8, 16
Null-point, 31
Nystagmus, 26, 29-32

O

Olfactory, 85, 120
Olfactory-gustatory, 190
O'Mara Maida, S., 131, 138
O'Mara, B., 121, 137
OP, 25
Ophthalmologist, 20-21, 29, 33, 192
Ophthalmologists, 20, 25, 27
Ophthalmology, 20, 34
Optic, 24, 26-30
Optical, 21
Optometrist, 21
Optometrists, 25
Oral, 168
Oral-facial, 90
Orthopedic, 19
OT, 19-20
OTR, 19
Overbrook School for the Blind, 194
Overprotection, 101
Overstimulate, 95
Overstimulating, 94
Overstimulation, 191
Overview, 3, 83, 151
Owens, C., 98

P

Palmar, 108
Palsy, 88, 91
Parent-to-parent, 50
Pathological, 41
Pathologist, 19, 81
Pathology, 34
Pediatric, 20, 192
Pediatrician, 32
Pegboard, 168, 188-189
Pegboards, 168, 108
Pendular, 30
Penis, 5
Penlights, 192
Perceptual-motor, 83
Perimeter, 79, 128, 134
Peripheral, 24, 26-29, 31-32
Perret, Y.M., 34
Philosophical, 35
Phonemes, 73
Phonology, 70
Photophobia, 28, 32-33
Photophobic, 31
Photoreceptor, 23
Photoreceptors, 32
Physician, 48, 97
Piaget, J., 6, 16, 83
Pigment, 31
Pigmentation, 32
Pincer, 102, 108, 188
Pituitary, 29
Plurality, 75
Pogrund, R., 22, 128, 131-132, 137-138
Poke, 59, 108
Poking, 91, 113
Polcyn, D., 98
Ponder, P., 137
Popper, 131-132
Postural, 87, 89, 91, 94-95, 101-107, 111, 125
Posturally, 112

Posture, 70, 85-87, 89, 94, 102, 104, 125, 131-132, 190
Postures, 89, 91, 103, 105-106
Practitioner, 137
Pre-braille, 17-18, 189, 191-192
Pre-walking, 129, 131
Pre-academic, 11, 182
Pregnancy, 26, 35, 43
Prelinguistic, 72
Premature, 8, 26
Prematurely, 44, 103
Prematurity, 26
Preoperational, 7
Preschool, 3, 5, 11-14, 16, 61-62, 71, 78, 80-82, 98, 114-117, 119-120, 122, 126-130, 133-138, 143, 150, 154, 174-176, 181-184, 187-188
Preschool-aged, 126-128
Preschooler, 11-14, 121, 135, 192
Preschoolers, 3, 5-6, 10-16, 22, 68, 132, 137
Preschools, 145, 181
Preventative, 60
Preventive, 61
Primer, 137
Problematic, 57, 59, 61-63, 65
Processor, 88
Prognosis, 47
Proj, 25
Projection, 25
Projections, 51
Proprioception, 85
Proprioceptive, 85-88, 92, 95-96
Psychological, 70, 98
Psychology, 56
Psychosocial, 6, 154
PT, 19-20
PTA, 20
Puzzle, 78, 169, 189, 193
Puzzles, 5, 108, 160, 168, 188

Q

Quirk, N.J., 98

R

Raynor, S., 22, 133-134, 137-138
Reproductive, 16
Resource, 17-18, 50, 114, 137, 150
Resources, 16, 19, 22, 37-39, 45-46, 50, 53, 56, 68, 114, 150, 174-175, 186, 190, 194
Respiratory, 111
Retardation, 32, 92, 111
Retina, 23-24, 26-29, 31-32, 158
Retinal, 26, 32, 158
Retinopathy, 26
Retrolental, 26
Reynell, J., 8, 16
Rheostats, 133
RLF, 26
ROP, 26
Rosen, S., 117, 132, 137-138
RPT, 19

S

Sameroff, A.J., 16
Santin, S., 71, 82
Scarr-salapatek, S., 16
Scharf, B., 150
School-aged, 151
Sclera, 24
Scholl, G., 22, 34, 68, 114
Scott, E., 24, 27, 34, 114
Segal, J., 69
Seigel, M., 16
Seizure, 91
Seizures, 43, 91, 97
Seligman, M., 45-46, 50, 56
Seligman, P., 45-46, 50, 56
Semantic, 70, 74
Sensation, 97, 111
Sensations, 58
Sensorily, 16, 150
Sensorimotor, 6, 12, 83-89, 91, 93, 95-97, 104, 110, 125
Sensory, 9-12, 14, 19-20, 30, 76, 83-90, 92-94, 96, 98, 107, 109, 111, 114, 116-118, 125, 128, 133-134, 141, 190
Sensory-motor, 83, 98
Septo-optic, 29
Seriation, 7, 10
Sibling, 36

Siblings, 36, 43, 46, 158
Simmons, J.N., 82
Simmons, S., 23, 131, 138, 139
Slents, K.L., 56
Social-emotional; 176-177
Socialization, 53, 57, 59
Socializing, 49
Sociocultural, 53, 156
Socioeconomic, 38, 52-53
Software, 188
Somatosensory, 85-86, 89, 104
Spatial, 7, 10, 86, 104, 117, 121-122, 128-129, 133, 190
Spaulding, I., 16, 150
Special-needs, 36, 46
Specialist, 17-18, 21, 26, 94, 107, 113, 116-117, 130, 132, 134, 156-157
Specialists, 8, 17, 20, 78, 97, 132
Specialization, 86
Spine, 105
Stigmatizations, 54
Stout, A., 23
Strabismus, 29
Stratton, J.M., 16
Stressors, 38-39
Sunglasses, 32, 134, 193
Sunlight, 28
Sunscreen, 31, 134
Surgery, 20, 26, 29
Surgical, 26
Sylvester, R., 98
Syntactic, 70, 73
Syntax, 70

T

Tabbara, K.F., 34
Tactile, 9, 13, 18, 85-88, 90, 92, 94-96, 109-110, 112, 119, 122-123, 127, 133-134, 190-192
Tactual, 10, 14, 117, 132, 188-191
Tactually, 108
Tantrums, 5, 165, 179
Team, 17, 19, 21, 49-50, 67, 88, 91, 93, 111, 116-117, 146, 157, 174-175, 177-178, 181, 185
Telegraphic, 74
Temperament, 7
Temporal, 7, 123
Theological, 43
Theoretical, 11, 41
Therapeutic, 36, 45, 96
Therapist, 17, 19-20, 88, 93, 95, 97, 111, 113, 125, 140, 142, 156-157, 162, 175, 178, 180, 182
Therapists, 20, 93, 96, 182
Therapy, 19-20, 83, 88, 98, 114, 162, 171, 181, 184,
Thomas-Connolly, T., 119, 137
Thyroid, 29
Time-out, 64-66
Timeline, 153
Timelines, 154, 179-183
Tobacco, 43
Toddler, 6, 10, 88, 116, 121-122, 135
Toddlerhood, 5
Toddlers, 3-6, 10, 16, 151, 126, 137
Toilet, 128, 145-147, 150, 166-167, 175, 179-180
Toileting, 5, 14, 139, 145-147, 166, 179-180
Tooth, 140
Toothbrush, 148, 108
Toothpaste, 128, 140, 148
Torrance, 98
Trail, 172
Trailing, 125, 127-129, 173
Traits, 7, 54
Transaction, 7
Transactional, 6-7
Transcend, 55
Transformations, 3
Transition, 12, 107, 122, 154, 174-175, 182-184
Transitional, 102, 105
Transitions, 14
Transmission, 154
Transmitted, 84
Trauma, 30
Trief, E., 16
Tripod, 189

Tubes, 148
Tumor, 31
TVI, 17, 94
Typoscope, 190-191

U
UCLA, 194
Ulnar, 107
Ultraviolet, 31
Underdeveloped, 29, 31-32
Unilateral, 107
Unimpaired, 156
Unystagmus, 31
Urinate, 146, 167
Urinates, 166, 180
Urinating, 146, 179
Utero, 29

V
Vaughan, D., 34
Verbalisms, 76
Verbalizations, 71
Vestibular, 58, 61, 85-89, 92-93, 95-96, 104
Videos, 46, 175-176, 178-179, 182-183
Videotapes, 98
Vincent, L., 174, 186
Virus, 26
Visor, 134
Visors, 32
Visual-motor, 188
Visual-perceptua, 188
Vitreous, 24, 27
Vocalization, 57, 71-72
Vocalizations, 91

W
Warren, D.H., 101, 105, 109, 111, 114
Wayman, K.I., 56
Wheelchairs, 20
Winger, J., 101, 114
Wolery, M., 60, 68

Y
Young, S.B., 98

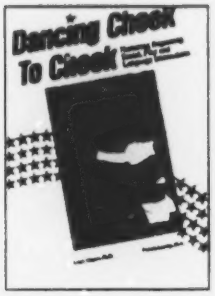
Z
Zuniga, M.E., 40, 52, 54, 56

Blind Childrens Center

The Blind Childrens Center offers a program of diversified services which meets the special needs of blind, visually impaired, and multihandicapped blind children (ages birth through five years), their parents and siblings at no charge. Services include: Infant Stimulation Program; Education Preschool; Family Support Services; Correspondence Program; Toll Free National Phone Line; Publication and Research Program; Internship Opportunities; and Interdisciplinary Assessment Service.

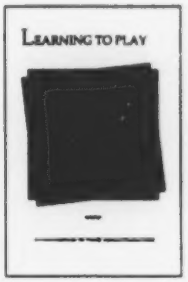
The Blind Childrens Center is a non-profit organization available to blind and partially sighted children regardless of race, color, national or ethnic origin, sex, or religion. Founded in 1938, the Center is a project of the Southern California Delta Gammas. The Blind Childrens Center operates without state or federal assistance.

Educational materials available from the Blind Childrens Center



Dancing Cheek to Cheek

Beginning social, play and language interactions. Available in English only. (33 pages)
$3.00



Learning to Play

Presenting play activities to the pre-school child who is visually impaired. Available in English only. (12 pages)
$1.50

First Steps

A handbook for teaching young children who are visually impaired
An easy to understand handbook designed to assist students, professionals and parents working with children who are visually impaired. English only. (224 pages)
$19.95

Move with Me

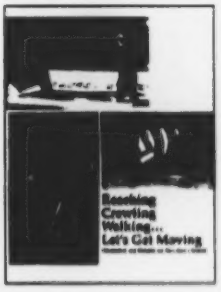
A parent's guide to movement development for babies who are visually impaired. Available in English & Spanish. (12 pages)
$1.50

Heart to Heart

Parents of children who are blind and partially sighted talk about their feelings. Available in English & Spanish. (12 pages)
$1.50

Heart to Heart

on video available for
$10.00



Reaching, Crawling, Walking...

Let's Get Moving
Orientation and mobility for preschool children who are visually impaired. Available in English only. (24 pages)
$3.00

Orders may be faxed to us at 213/665-3828

BEST COPY AVAILABLE

Order Form

please print

office use only

ID# _____

INV# _____

Selecting a Program

A guide for parents of infants and preschoolers with visual impairments. Available in English & Spanish. (28 pages)
$3.00

Talk to Me

A language guide for parents of children who are visually impaired. Available in English & Spanish. (11 pages)
$1.50

Talk to Me II

A sequel to Talk to Me. Available in English & Spanish. (15 pages)
$1.50

date _____

name _____

title _____

agency _____

address _____

city/state/zip/country _____

area code/telephone _____

Item	no. of English	no. of Spanish	Price	Qty x Price
Dancing Cheek to Cheek			$3.00	
First Steps			$19.95	
Heart to Heart			$1.50	
Heart to Heart video			$10.00	
Learning to Play			$1.50	
Move with Me			$1.50	
Reaching, Crawling...			$3.00	
Selecting a Program			$3.00	
Talk to Me			$1.50	
Talk to Me II			$1.50	
			Subtotal	
			20% shipping & handling	
			Total	

Method of payment:

- ☐ P. O. # _____
- ☐ Check—*U.S. dollars only*
  Payable to "Blind Childrens Center."
- ☐ Please, bill me.
- ☐ Visa/Mastercard

Card # _____ Exp. _____

Signature _____

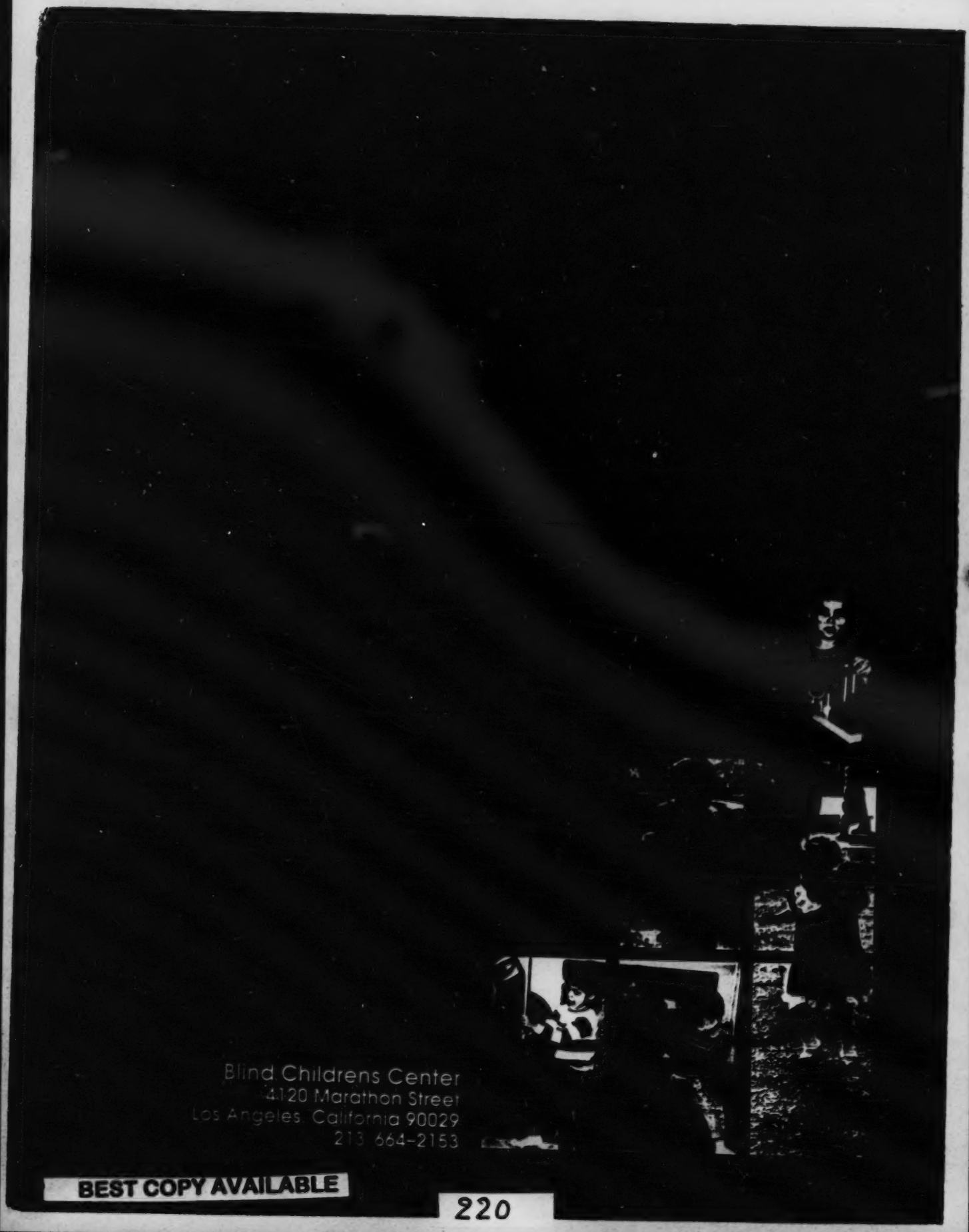
☐ A free copy of each booklet (excluding *First Steps* and videos) is available to parents of visually impaired children. Check this box if you qualify. Organizations and/or professionals may not order complimentary booklets for parents. Parents must request complimentary booklets directly from the Center.

☐ Please send me a Center brochure.

☐ Please send me an Assessment brochure (available in the Southern California area only).

Our Federal ID. number is 95-1656369.

BEST COPY AVAILABLE



Blind Childrens Center
4120 Marathon Street
Los Angeles, California 90029
213 664-2153

BEST COPY AVAILABLE